AD 605 736

U.S. Air Force - Research Grant AF-AFOSOR-181-63

Technical Report

U.S. - AFOSR No. 64-0039

MOLTEN SALT DATA

Electrical Conductance, Density, and Viscosity

by

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Submitted for publication: Technical Bulletin Series,
Rensselaer Polytechnic Institute, Troy, N.Y.

July, 1964

ACKNOWLEDGEMENTS

This compilation was undertaken as part of a program on molten electrolytes in the Laboratory of the senior author at Rensselaer Polytechnic Institute, and has been made possible in large part by financial support received from the U.S. Air Force, Office of Scientific Research, Washington, D.C.

The authors wish to thank F.J. Kelly for helpful discussions and direct participation in the early stages of the work in single salt melts; the assistance of Jeanne Perano, George Mayer, and Kenneth Klotzkin in the various phases of the preparation of this compilation is acknowledged.

ABSTRACT

Conductance, density, and viscosity data at round values of temperature (°K) are given for some 126 inorganic compounds as Single-Salt Melts (Fluorides, 15; Chlorides, 34; Bromides, 20; Iodides, 23; Oxides, 7; Sulphates, 5; Nitrates, 7; Carbonates, 3; and Miscellaneous, 12). Equations expressing the temperature dependence of these properties for the single-salt melts are also given. For mixtures of these salts, the binary systems that have received attention are listed; numerical values for these mixtures are not given but are referenced.

CONTENTS

I. INTRODUCTION

This compilation was undertaken largely to meet the need in the scientific community at large for "best" values for inorganic salts as single-salt melts. The need for such values to advance both theoretical and experimental studies in the various areas of high temperature technology involving molten inorganic compounds has become apparent with the increasing interest and activity in the last decades.

An assessment of the original publications for the properties of electrical conductance, density, and viscosity, for the various inorganic compounds in the molten state, for the period 1830 - 1964, was the first part of this study. Chemical Abstracts (ACS), Current Chemical Papers (Chemical Society, London), and Molten Salt Bibliography (Bibliography on Molten Salts; G.J. Janz, Rensselaer Polytechnic Institute, 1961); an Annoted Bibliography of Molten Salts (L.S. Charnoff, New York University, 1958), as well as the various scientific journals were searched for contributions pertinent to this work. The original data for some 126 inorganic compounds as single-salt melts were thus traced to the original research publications.

Where a given salt has been studied by more than one group of investigators, graphs of the numerical values against

temperature were drawn using the original experimental values (where available), and data alculated from equations quoted in these publications. In some cases, the equations for these data, with limits of error, are quoted, and in such cases, additional weight was given to these values when drawing a smooth curve through the graphical points. Comparison of the results of the various investigators with such a reference curve made possible the immediate exclusion of grossly inaccurate data, and the grading of the remaining values in order of agreement with the reference curve. The grading order was reasonably consistent in all cases where it was applicable; it was used as a base for the "best value" decisions.

The numerical data were programmed to linear, quadratic, and exponential type equations, using an IBM 1410 computer. Conservative standard deviations were obtained and are listed in the Tables of Equations; the equation giving the smallest standard deviation (s) was used to compute the values of density (ρ), specific conductance (κ), equivalent conductance (Λ), and viscosity (η) at round temperatures (10 °K intervals for the range of measurements). The "best values" for ρ and κ were used to compute the values of equivalent conductance.

For the mixtures, the assessment was restricted to binary systems. Since both composition and temperature are variables, and owing to the very limited number of studies made for any one system, no numerical data are listed in the present compilation. The binary

system and the reference to the original research publication are listed as a guide to the results in this area of molten salt studies.

Properties of the very low melting salts (e.g. < 100 °C, $AlBr_3$, quaternary ammonium salts), and the silicates have not been included in this work.

II. SINGLE SALT MELTS

A: Numerical Values The "best values", and the equations used (linear, quadratic, and exponentsil) for density (ρ), specific conductance (κ), equivalent conductance (Λ), and viscosity (η), are listed at 10°(K) intervals for temperature range of the measurements (Tables 1-126). The equivalent weight, melting point temperature, the temperature dependence as an equation, and the salient literature references are also given for each compound.

For presentation of the data, a classification in groups by anions, i.e., Fluorides, Chlorides, Bromides, Iodides, Carbonates, Nitrates, Oxides, Sulphates, and Miscellaneous, has been used. The order within each anionic group is summarized in the group title sheet preceding each set of tables.

B: Equations In general practice, the temperature dependence has been expressed by (a) linear, and (b) exponential type equations. Tables 127-130 list the coefficients for the following equations:

$$\text{density:} \quad \rho = a - bT \qquad (1)$$

$$\text{electrical conductance:} \quad \varkappa = a - bT \qquad (2)$$

$$\varkappa = A_{\varkappa} e^{-E_{\varkappa}/RT} \qquad (3)$$

$$\text{and} \quad \Lambda = A_{\Lambda} e^{-E_{\Lambda}/RT} \qquad (4)$$

$$\text{viscosity:} \quad \eta = A e^{E_{\eta}/RT} \qquad (5)$$

$$\text{and} \quad \eta = \frac{B}{v-b} \qquad (6)$$

where the last expression (eq. 6) is an alternate method of representing the viscosity variation with temperature (the Batchinskii equation).

C: References The references to the original publications used as the data sources for the "best values" for the single-salt melts computed in this work are listed in this section.

III. MIXTURES

The binary systems for which density, conductance, and viscosity data have been reported are listed in a series of three tables in this section; the salient references to each table are given so that the results, as originally published, can be readily recovered from the literature.

IV. UNITS

Unless otherwise noted, the units in this compilation are as follows:

Temperature	T °K
Equivalent Conductance	Λ ohm^{-1}cm^{2}equiv.$^{-1}$
Specific Conductance	$\varkappa$ ohm^{-1}cm^{-1}
Density	ρ g cm^{-3}
Viscosity	η cp

Fluorides

LiF

NaF

KF

CsF

MgF_2

CaF_2

SrF_2

BaF_2

LaF_3

CeF_3

CuF_2

AgF

ZnF_2

PbF_2

MnF_2

TABLE I

LITHIUM FLUORIDE

Eq. Wt. 25.94 m.p. 847°C.(1120°K.)

κ = 1.[illegible]29 $\exp(-991/RT)$

$\rho = 2.3768 - 0.4902 . 10^{-3} T$

$\Lambda = 31.30 \exp(-1611/RT)$

T	Λ	κ	ρ
1150	14.18	0.991_0	1.8131
1160	14.27	0.994_7	1.8082
1170	14.36	0.998_3	1.8033
1180	14.45	1.002_0	1.7984
1190	14.54	1.005_5	1.7935
1200	14.63	1.009_0	1.7886
1210	14.73	1.012_5	1.7837
1220	14.82	1.015_9	1.7788
1230	14.91	1.019_3	1.7739
1240	15.00	1.022_7	1.7690
1250	15.09	1.026_0	1.7641
1260	15.18	1.029_2	1.7591
1270	15.27	1.032_4	1.7542
1280	15.36	1.035_6	1.7493
1290	15.45	1.038_7	1.7444
1300	15.54	1.041_8	1.7395

Density: 25, 81, 83.

Conductance: 42, 83, 86, 88.

TABLE 2

SODIUM FLUORIDE

Eq. Wt. 42.00 m.p. 995°C.(1268°K.)

κ = 7.706 exp(-1046/RT)

ρ = $2.655 - 0.56.10^{-3}T$

Λ = 244.8 exp(-2019/RT)

T	Λ	κ	ρ
1270	110.0	5.091	1.944
1280	110.7	5.108	1.938
1290	111.4	5.124	1.933
1300	112.0	5.140	1.927
1310	112.7	5.156	1.921
1320	113.4	5.172	1.916
1330	114.1	5.187	1.910

Density: 25, 31.

Conductance: 31, 46, 67, 86, 88.

TABLE 3

POTASSIUM FLUORIDE

Eq. Wt. 58.10 m.p. 858°C.(1131°K.)

κ = 7.969 exp(-1341/RT)

ρ = 2.6464 - 0.6515.10^{-3}T

Λ = 387.0 exp(-2398/RT)

T	Λ	κ	ρ
1150	135.7	4.431	1.8972
1160	136.9	4.454	1.8907
1170	138.0	4.476	1.8841
1180	139.2	4.498	1.8776
1190	140.3	4.520	1.8711
1200	141.5	4.541	1.8646
1210	142.7	4.562	1.8581
1220	143.8	4.583	1.8516
1230	145.0	4.604	1.8451
1240	146.1	4.624	1.8385
1250	147.3	4.644	1.8320
1260	148.4	4.664	1.8255
1270	149.6	4.684	1.8190
1280	150.8	4.704	1.8125
1290	151.9	4.723	1.8060
1300	153.1	4.742	1.7995
1310	154.3	4.761	1.7929

Density: 26, 81, 83.

Conductance: 26, 31, 42, 73, 83, 86, 88.

TABLE 4

CESIUM FLUORIDE

Eq. Wt. 151.91 m.p. 703 °C.(976 °K.)

$\kappa = -9.6104 + 20.7048.10^{-3}T - 7.6993.10^{-6}T^2$

$\rho = 4.8985 - 1.2806.10^{-3}T$

$\Lambda = 741.8 \exp(-3262/RT)$

T	Λ	κ	ρ
1000	142.6	3.395	3.6179
1010	145.3	3.447	3.6051
1020	147.9	3.498	3.5923
1030	150.5	3.547	3.5795
1040	153.1	3.595	3.5667
1050	155.6	3.641	3.5539
1060	158.1	3.686	3.5411
1070	160.5	3.729	3.5283
1080	162.9	3.770	3.5155
1090	165.3	3.810	3.5026
1100	167.5	3.849	3.4898
1110	169.8	3.886	3.4770
1120	171.9	3.921	3.4642
1130	174.1	3.955	3.4514
1140	176.1	3.987	3.4386
1150	178.2	4.018	3.4258
1160	180.1	4.047	3.4130
1170	182.0	4.075	3.4002
1180	183.9	4.101	3.3874
1190	185.7	4.125	3.3746

Density: 25, <u>83</u>.

Conductance: <u>83</u>.

TABLE 5

MAGNESIUM FLUORIDE

Eq. Wt. 31.16   m.p. 1263°C.(1536°K.)

$\rho = 3.235 - 5.24.10^{-4}T$

T	ρ
1650	2.370
1700	2.344
1750	2.318
1800	2.292
1850	2.266
1900	2.239
1950	2.213
2000	2.187
2050	2.161
2100	2.135

Density: 95.

TABLE 6

CALCIUM FLUORIDE

Eq. Wt. 39.04 m.p. 1418°C.(1691°K.)

$\rho = 3.179 - 3.91 . 10^{-4} T$

T	ρ
1650	2.534
1700	2.514
1750	2.495
1800	2.475
1850	2.456
1900	2.436
1950	2.417
2000	2.397
2050	2.377
2100	2.358
2150	2.338
2200	2.319
2250	2.299
2300	2.280

Density: 95.

TABLE 7

STRONTIUM FLUORIDE

Eq. Wt. 62.81 m.p. 1400°C.(1673°K.)

$\rho = 4.784 - 7.51.10^{-4}T$

T	ρ
1750	3.470
1800	3.432
1850	3.395
1900	3.357
1950	3.320
2000	3.282
2050	3.244
2100	3.207
2150	3.169
2200	3.132

Density: 95.

TABLE 8

BARIUM FLUORIDE

Eq. Wt. 87.68 m.p. 1320 °C.(1593 °K.)

$\rho = 5.775 - 9.99.10^{-4}T.$

T	ρ
1600	4.177
1650	4.127
1700	4.077
1750	4.027
1800	3.977
1850	3.927
1900	3.877
1950	3.827
2000	3.777

Density: 93.

TABLE 9

LANTHANUM (III)FLUORIDE

Eq. Wt. 65.30

$\rho = 5.793 - 6.82 . 10^{-4} T$

T	ρ
1750	4.600
1800	4.565
1850	4.531
1900	4.497
1950	4.463
2000	4.429
2050	4.395
2100	4.361
2150	4.327
2200	4.293
2250	4.259
2300	4.224
2350	4.190
2400	4.156
2450	4.122

Density: 95.

TABLE 10

CERIUM (III)FLUORIDE

Eq. Wt. 65.70 m.p. 1460 °C.(1733 °K.)

$\rho = 6.253 - 9.36.10^{-4}T$

T	ρ
1700	4.662
1750	4.615
1800	4.568
1850	4.521
1900	4.475
1950	4.428
2000	4.381
2050	4.334
2100	4.287
2150	4.241
2200	4.194

Density: 95.

TABLE 11

MANGANESE (II)FLUORIDE

Eq.Wt. 46.46 m.p. 856°C.(1129°K.)

$\kappa = 4.0.10^{-3}T$

T	κ
1200	4.8
1250	5.0
1300	5.2

Conductance: 86.

TABLE 12

COPPER (II) FLUORIDE

Eq. Wt. 41.27 m.p. 908°C.(1181°K.)

$$\kappa = 0.93 + 1.0 . 10^{-3} T$$

T	κ
1270	2.2
1320	2.3
1370	2.4

Conductance: 86.

TABLE 13

SILVER FLUORIDE

Eq. Wt. 126.88 m.p. 435°C. (708°K.)

$$\kappa = 5.2 + 12.0.10^{-3}T$$

T	κ
800	4.4
850	5.0
900	5.6

Conductance: 86.

TABLE 14

ZINC FLUORIDE

Eq. Wt. 51.69 m.p. 872°C.(1145°k.)

$$\kappa = -3.75 + 6.0.10^{-3}T$$

T	κ
1150	3.1_5
1200	3.4_5

Conductance: 86.

TABLE 15

LEAD (II)FLUORIDE

Eq.Wt. 122.60 m.p. 824°C.(1097°K.)

$$\kappa = 0.7 + 4.0.10^{-3}T$$

T	κ
1150	5.3
1200	5.5
1250	5.7

Conductance: 86.

Chlorides

$LiCl$	UCl_4
$NaCl$	$MnCl_2$
KCl	$CuCl$
$RbCl$	$AgCl$
$CsCl$	$ZnCl_2$
$BeCl_2$	$CdCl_2$
$MgCl_2$	$HgCl$
$CaCl_2$	$HgCl_2$
$SrCl_2$	$InCl$
$BaCl_2$	$InCl_2$
$ScCl_3$	$InCl_3$
YCl_3	$TlCl$
$LaCl_3$	$SnCl_2$
$CeCl_3$	$PbCl_2$
$PrCl_3$	$BiCl_3$
$NdCl_3$	$TeCl_2$
$ThCl_4$	$TeCl_4$

TABLE 16

LITHIUM CHLORIDE

Eq. Wt. 42.4 m.p. 610°C.(883°K.)

$$\kappa = -2.0647 + 12.1271.10^{-3}T - 3.7641.10^{-6}T^2$$

$$\rho = 1.8842 - 0.4328.10^{-3}T$$

$$\Lambda = 508.2 \exp(-2015/RT)$$

$$\eta = 15.19.10^{-3} \exp(8517/RT)$$

T	Λ	κ	ρ	η	T	η
900	164.8_4	5.811	1.4947		1060	0.87
910	166.8_3	5.864	1.4904		1070	0.84
920	168.8_1	5.916_5	1.4860		1080	0.81
930	170.7_8	5.968	1.4817	1.52	1090	0.78
940	172.7_4	6.019	1.4774	1.45	1100	0.75
950	174.6_9	6.069	1.4730	1.38	1110	0.73
960	176.6_3	6.118_5	1.4687	1.32	1120	0.71
970	178.5_6	6.167	1.4644	1.26	1130	0.68
980	180.4_8	6.215	1.4601	1.20	1140	0.66
990	182.3_9	6.262	1.4557	1.15	1150	0.64
1000	184.2_9	6.308_5	1.4514	1.10	1160	0.61
1010	186.1_7	6.354	1.4471	1.05	1170	0.59
1020	188.0_5	6.399	1.4427	1.01		
1030	189.9_2	6.443	1.4384	0.97		
1040	191.7_7	6.486	1.4341	0.93		
1050	193.6_1	6.529	1.4298	0.90		

Density: 3, 25, 55, <u>62</u>, <u>66</u>, <u>79</u>, <u>81</u>.

Conductance: 33, 42, 44, 45, 55, 62, 66, <u>79</u>, <u>85</u>.

Viscosity: 12, 45, <u>47</u>.

TABLE 17

SODIUM CHLORIDE

Eq. Wt. 58.45 m.p. 801°C.(1074°K.)

$$\kappa = -2.4975 + 8.0431.10^{-3}T - 2.2227.10^{-6}T^{2}$$

$$\rho = 2.1393 - 0.5430.10^{-3}T$$

$$\Lambda = 544.6 \exp(-2990/RT)$$

$$\eta = -24.3637 - 8.93369.10^{-2}T - 9.2958.10^{-5}T^{2} + 3.00481.10^{-8}T^{2}$$

T	Λ	κ	ρ	η
1080	135.4	3.596	1.553	
1090	137.1	3.629	1.547	1.48
1100	138.8	3.660	1.542	1.42
1110	140.4	3.692	1.537	1.36
1120	142.1	3.723	1.531	1.30
1130	143.8	3.753	1.526	1.24
1140	145.4	3.783	1.520	1.19
1150	147.1	3.813	1.515	1.14
1160	148.8	3.842	1.509	1.08
1170	150.4	3.870	1.504	1.04
1180	152.1	3.898	1.499	0.99
1190	153.7	3.926	1.493	0.94
1200	155.3	3.954	1.488	0.90
1210	157.0	3.980	1.483	0.87
1220	158.6	4.007	1.477	0.83
1230	160.2	4.033	1.471	0.80
1240	161.8	4.058	1.466	0.77
1250	163.4	4.083	1.461	0.75
1260	165.0	4.108	1.455	0.73
1270	166.6	4.132	1.450	0.71
1280	168.2	4.156	1.444	
1290	169.8	4.179	1.439	

Density: 3, 10, 25, 55, 62, 66, 79, 80, 81, 96.

Conductance: 2, 4, 10, 27, 33, 42, 49, 55, 62, 63, 71, 79, 82, 85.

Viscosity: 12, 38, 57.

TABLE 18

POTASSIUM CHLORIDE

Eq. Wt. 74.55 m.p. 770°C.(1043°K.)

$\kappa = -3.2556 - 7.6635.10^{-3}T - 2.3742.10^{-6}T^2$

$\rho = 2.1359 - 0.5831.10^{-3}T$

$\Lambda = 558.3 \exp(-3458/RT)$

$\eta = 55.5632 - 0.127847T + 9.99580.10^{-5}T^2 - 2.62035.10^{-8}T^3$

T	Λ	κ	ρ	η
1050	106.3	2.174	1.5236	
1060	108.1	2.200	1.5178	1.14_9
1070	109.8	2.226	1.5120	1.10_8
1080	111.5	2.252	1.5062	1.07_1
1090	113.1	2.277	1.5003	1.03_6
1100	114.8	2.301	1.4945	1.00_4
1110	116.5	2.326	1.4887	0.97_5
1120	118.1	2.349	1.4828	0.94_8
1130	119.8	2.373	1.4770	0.92_4
1140	121.4	2.395	1.4712	0.90_1
1150	123.0	2.418	1.4653	0.88_1
1160	124.6	2.439	1.4595	0.86_3
1170	126.2	2.461	1.4537	0.84_7
1180	127.8	2.481	1.4478	0.83_2
1190	129.3	2.502	1.4420	0.81_9
1200	130.9	2.522	1.4362	0.80_7
1210	132.4	2.541	1.4303	
1220	134.0	2.560	1.4245	

Density: 3, 11, 26, 62, 66, 70, 79, 80, 81.

Conductance: 2, 4, 10, 26, 27, 42, 44, 49, 50, 55, 62, 63, 66, 70, 79, 80, 81, 95.

Viscosity: 12, 102, 111.

TABLE 19

RUBIDIUM CHLORIDE

Eq. Wt. 120.94 m.p. 715°C.(988°K.)

$\kappa = -3.6290 + 7.3405.10^{-3}T - 2.1918.10^{-6}T^2$

$\rho = 3.1210 - 0.8832.10^{-3}T$

$\Lambda = 754.1 \exp(-4401/RT)$

$\eta = 6.630.10^{-3} \exp(11442/RT)$

T	Λ	κ	ρ	η
990	80.2	1.490	2.2466	
1000	82.1	1.520	2.2378	
1010	84.0	1.549	2.2290	1.98
1020	86.0	1.578	2.2201	1.89
1030	87.9	1.606	2.2113	1.80
1040	89.8	1.634	2.2025	1.71
1050	91.6	1.662	2.1936	1.62
1060	93.5	1.689	2.1848	1.54
1070	95.4	1.716	2.1760	1.46
1080	97.2	1.742	2.1671	1.39
1090	99.1	1.768	2.1583	1.31
1100	100.9	1.793	2.1495	1.24
1110	102.7	1.818	2.1406	1.18
1120	104.6	1.843	2.1318	1.11
1130	106.4	1.867	2.1230	1.05
1140	108.2	1.891	2.1142	1.00
1150	119.9	1.914	2.1053	0.95
1160	111.7	1.937	2.0965	0.91
1170	113.5	1.959	2.0877	0.87
1180	115.2	1.981	2.0788	0.83
1190	117.0	2.002	2.0700	0.80
1200	118.7	2.023	2.0612	0.79
1210				0.76
1220				0.75

Density: 25, 35, 36, <u>82</u>.

Conductance: 33, <u>82</u>.

Viscosity: <u>109</u>.

TABLE 20

CESIUM CHLORIDE

Eq. Wt. 168.37 m.p. 646°C.(919°K.)

$\kappa = -3.2034 + 6.0802 \cdot 10^{-3}T - 1.5216 \cdot 10^{-6}T^2$

$\rho = 3.7692 - 1.065 \cdot 10^{-3}T$

$\Lambda = 1102 \exp(-5110/RT)$

$\eta = 7.579 \cdot 10^{-3} \exp(9819/RT)$

T	Λ	κ	ρ	η
940	71.0	1.167	2.7681	1.45
950	73.2_5	1.200	2.7575	1.38
960	75.4_5	1.231	2.7468	1.30
970	77.7	1.263	2.7362	1.24
980	79.9_5	1.294	2.7255	1.17
990	82.1_5	1.325	2.7149	1.12
1000	84.4	1.355	2.7042	1.06
1010	86.6	1.385	2.6936	1.01
1020	88.8	1.415	2.6829	0.96
1030	91.0_5	1.445	2.6723	0.92
1040	93.2_5	1.474	2.6616	0.88
1050	95.5	1.503	2.6510	0.84
1060	97.7	1.532	2.6403	0.80
1070	99.9	1.560	2.6297	0.77
1080	100.2	1.588	2.6190	0.74
1090	104.3	1.616	2.6084	0.71
1100	106.5	1.644	2.5977	0.68
1110	108.7	1.671	2.5871	0.65
1120	110.9	1.698	2.5764	0.62
1130	113.2	1.724	2.5658	0.60
1140	115.3	1.751	2.5551	0.58
1150	117.6	1.777	2.5445	0.56
1160	119.8	1.802	2.5338	0.54
1170	122.0	1.828	2.5232	0.52

Density: 25, 59, 80, 81, 82.

Conductance: 33, 82.

Viscosity: 109.

TABLE 21

BERYLLIUM (II) CHLORIDE

Eq. Wt. 39.96 m.p. 440°C. (713°K.)
(Sublimation)

$\kappa = -0.1855 + 0.2607.10^{-3}T$

$\rho = 2.276 - 1.10.10^{-3}T$

$\Lambda = 3.05.10^{15} \exp\ (-54911/RT)$

T	$\Lambda.10^2$	$\kappa.10^2$	ρ
720	5.8	0.22	1.484
730	12.9	0.48	1.473
740	20.1	0.74	1.462
750	27.5	1.00	1.451

Density: 36.

Conductance: 32.

TABLE 22

MAGNESIUM CHLORIDE

Eq. Wt. 47.62 m.p. 708°C.(981°K.)

$\kappa = -0.6049 + 1.352.10^{-3}T - 0.2911.10^{-6}T^2$

$\rho = 1.976 - 0.302.10^{-3}T$

$\Lambda = 263.7 \exp(-4363/RT)$

T	Λ	κ	ρ
1000	29.51	1.038	1.675
1020	30.75	1.077	1.668
1040	31.98	1.116	1.662
1060	33.21	1.155	1.656
1080	34.49	1.195	1.650
1100	35.77	1.235	1.644
1120	37.04	1.274	1.638
1140	38.37	1.315	1.632
1160	39.68	1.355	1.626
1180	41.04	1.396	1.620
1200	42.40	1.437	1.614
1220	43.77	1.478	1.608
1240	45.15	1.519	1.602

Density: 36, 63, <u>89</u>, <u>96</u>.

Conductance: 35, 63, <u>94</u>.

TABLE 23

CALCIUM CHLORIDE

Eq. Wt. 55.49 m.p. 773°C. (1046°K.)

$\varkappa$ = 19.628 exp (-4749/RT)

ρ = $2.5261 - 0.4225.10^{-3}T$

Λ = 675.3 exp (-5285/RT)

η = $1.073.10^{-2}$ exp (12030/RT)

T	Λ	$\varkappa$	ρ	η
1060	54.9_8	2.059	2.0783	3.24
1070	56.2_6	2.103	2.0740	3.08
1080	57.5_5	2.147	2.0698	2.92
1090	58.8_5	2.191	2.0656	2.77
1100	60.1_6	2.235	2.0614	2.64
1110	61.4_8	2.279	2.0571	2.51
1120	62.8_0	2.323	2.0529	2.39
1130	64.1_3	2.368	2.0487	2.28
1140	65.4_6	2.412	2.0445	2.17
1150	66.8_1	2.456	2.0402	2.07
1160	68.1_6	2.501	2.0360	1.98
1170	69.5_1	2.545	2.0318	1.90
1180	70.8_7	2.590	2.0276	1.81
1190	72.2_4	2.634	2.0233	1.74
1200	73.6_1	2.679	2.0191	1.67
1210	74.9_9	2.723	2.0149	1.60
1220	76.3_8	2.767	2.0107	1.53
1230	77.7_6	2.812	2.0064	1.47
1240				1.42

Density: 11, 17, 63, 83.

Conductance: 2, 4, 11, 35, 42, 50, 71, 83, 85, 94.

Viscosity: 47, 109.

TABLE 24

STRONTIUM CHLORIDE

Eq. Wt. 79.27 m.p. 873°C.(1146°K.)

$\varkappa = 17.792 \exp(-4987/RT)$

$\rho = 3.3896 - 0.5781.10^{-3}T$

$\Lambda = 689.6 \exp(-5646/RT)$

$\eta = 4.302.10^{-4} \exp(20700/RT)$

T	Λ	$\varkappa$	ρ	η
1160				3.42
1170	60.85	2.082_5	2.7132	3.17
1180	62.09	2.120_8	2.7074	2.94
1190	63.35	2.159_0	2.7017	2.73
1200	64.61	2.197_3	2.6959	2.53
1220	65.88	2.235_6	2.6901	2.36
1230	67.15	2.274_0	2.6843	2.20
1240	68.43	2.312_3	2.6785	2.05
1250	69.72	2.350_7	2.6728	1.91
1260	71.01	2.389_1	8.5670	1.79
1270	72.31	2.427_4	2.6612	
1280	73.61	2.465_8	2.6554	
1290	74.92	2.504_2	2.6496	
1300	76.23	2.542_5	2.6439	
1310	77.55	2.580_9	2.6381	
1320	78.88	2.619_2	2.6323	

Density: 11, <u>81</u>, <u>83</u>.

Conductance: 4, <u>83</u>, <u>94</u>.

Viscosity: <u>109</u>.

TABLE 25

BARIUM CHLORIDE

Eq. Wt. 104.14 m.p. 962°C.(1235°K.)

κ = 17.479 exp [illegible])

$\rho = 4.0152 - 0.6813.10^{-3}T$

$\Lambda = 772.5 \exp(-6004/RT)$

$\eta = 1.643.10^{-3} \exp(-20030/RT)$

T	Λ	κ	ρ	η
1240	67.5_8	2.058	3.1704	
1250	68.9_0	2.093	3.1636	
1260	70.2_2	2.129	3.1568	
1270	71.5_5	2.164	3.1499	4.60
1280	72.8_9	2.200	3.1431	4.32
1290	74.2_3	2.236	3.1363	4.07
1300	75.5_8	2.271	3.1295	3.83
1310	76.9_3	2.307	3.1227	3.61
1320	78.2_9	2.343	3.1159	
1330	79.6_6	2.378	3.1091	
1340	81.0_3	2.414	3.1023	
1350	82.4_1	2.450	3.0954	
1360	83.8_0	2.485	3.0886	

Density: 11, 63, 70, 81, 83.

Conductance: 4, 63, 83, 85, 94.

Viscosity: 52, 109.

TABLE 26

SCANDIUM (III) CHLORIDE

Eq. Wt. 50.49 m.p. 939°C.(1212°K.)

$$\kappa = -2.890 + 2.796 \cdot 10^{-3}T$$

T °K	κ	ρ
1213		1.67
1223	0.53	
1273	0.67	1.63

Density: 36.

Conductance: 30.

TABLE 27

YTTRIUM (III) CHLORIDE

Eq. Wt. 65.09 m.p. 680°C.(953°K.)

$$\kappa = -3.7071 + 5.9576.10^{-3}T - 1.8199.10^{-6}T^2$$

$$\rho = 3.007 - 0.50.10^{-3}T$$

$$\Lambda = 959.2 \exp(-8827/RT)$$

T	Λ	κ	ρ
980	9.9	0.384	2.517
990	10.5_5	0.407	2.512
1000	11.2	0.431	2.507
1010	11.8	0.454	2.502
1020	12.4	0.476	2.497
1030	13.0	0.498	2.492
1040	13.6	0.520	2.487
1050	14.2	0.542	2.482
1060	14.8	0.563	2.477
1070	15.4	0.584	2.472
1080	15.9_5	0.604	2.467
1090	16.5	0.624	2.462
1100	17.0_5	0.644	2.457
1110	17.6	0.664	2.452
1120	18.1_5	0.683	2.447
1130	18.7	0.701	2.442
1140	19.2	0.719	2.437
1150	19.7_5	0.737	2.432
1160	20.2_5	0.755	2.427

Density: 36.

Conductance: 35.

TABLE 28

LANTHANUM (III) CHLORIDE

Eq. Wt. 81.76 m.p. 872°C.(1145°K.)

κ = 12.623 exp (-4812/RT)

ρ = 4.0895 - 0.7774.10^{-3}T

Λ = 439.2 exp (-5515/RT)

T	Λ	κ	ρ
1150	39.3_2	1.537	3.1955
1160	40.1_4	1.565	3.1877
1170	40.9_6	1.593	3.1799
1180	41.7_9	1.621	3.1722
1190	42.6_2	1.649	3.1644
1200	43.4_5	1.678	3.1566
1210	44.2_9	1.706	3.1488
1220	45.1_4	1.734	3.1411
1230	45.9_9	1.762	3.1333
1240	46.8_4	1.791	3.1255
1250	47.6_9	1.819	3.1178

Density: 36, 83.

Conductance: 35, 83.

TABLE 29

CERIUM (III) CHLORIDE

Eq. Wt. 82.17 m.p. 822°C.(1095°K.)

$\kappa = -1.426 + 2.125.10^{-3}T$

$\rho = 4.248 - 0.920.10^{-3}T$

$\Lambda = 403.0 \exp(-6244/RT)$

T	Λ	κ	ρ
1130	24.98	0.9753	3.208
1140	25.59	0.9965	3.199
1150	26.22	1.0178	3.190
1160	26.84	1.0390	3.181
1170	27.47	1.0603	3.172
1180	28.10	1.0815	3.162
1190	28.74	1.1028	3.153
1200	29.38	1.1240	3.144
1210	30.02	1.1453	3.135
1220	30.67	1.1665	3.126

Density: 99.

Conductance: 99.

TABLE 30

PRASEODYMIUM (III) CHLORIDE

Eq. Wt. 82.43 m.p. 818°C.(1091°K.)

$$\kappa = 36.17 \exp(-8258/RT)$$

T	κ
1100	0.82_7
1110	0.85_6
1120	0.88_5
1130	0.91_4
1140	0.94_4
1150	0.97_5
1160	1.00_5
1170	1.03_7
1180	1.06_8
1190	1.10_1
1200	1.13_3
1210	1.16_6
1220	1.19_9
1230	1.23_3
1240	1.26_7

Conductance: 32.

TABLE 31

NEODYMIUM (III) CHLORIDE

Eq. Wt. 83.55 m.p. 784°C.(1057°K.)

$$\kappa = -2.018 + 2.527.10^{-3}T$$

T	κ
1050	0.635
1060	0.661
1070	0.686
1080	0.712
1090	0.736
1100	0.762
1110	0.787
1120	0.812
1130	0.838
1140	0.863
1150	0.888
1160	0.913
1170	0.939

Conductance: 32.

TABLE 32

THORIUM (IV) CHLORIDE

Eq. Wt. 93.49 m.p. 770°C.(1043°K.)

$\kappa = -13.1887 + 22.5705 \cdot 10^{-3}T - 9.0973 \cdot 10^{-6}T^2$

$\rho = 3.3_2$ (1090°K. - 1190°K.)

$\Lambda = 395.0 \exp(-6764/RT)$

T	Λ	κ	ρ
1090	17.0	0.60	3.3_2
1100	17.8	0.63	3.3_2
1110	18.5	0.66	3.3_2
1120	19.1	0.69	3.3_2
1130	19.7	0.70	3.3_2
1140	20.2	0.72	3.3_2
1150	20.7	0.74	3.3_2
1160	21.2	0.75	3.3_2
1170	21.6	0.77	3.3_2
1180	21.9	0.78	3.3_2
1190	22.2	0.79	3.3_2

Density: 36.

Conductance: 32.

TABLE 33

URANIUM (IV) CHLORIDE

Eq. Wt. 94.98 m.p. 590°C.(863°K.)

$$\kappa = -2.023 + 2.803.10^{-3}T$$

T	κ
840	0.332
850	0.360
860	0.388
870	0.416
880	0.444
890	0.472

Conductance: 32.

TABLE 34

MANGANESE (II) CHLORIDE

Eq. Wt. 62.92 m.p. 650 °C.(923 °K.)

$$\kappa = 11.80 \exp(-4694/RT)$$

T	κ
1120	1.43_2
1130	1.45_9
1140	1.48_6
1150	1.51_3
1160	1.54_0
1170	1.56_7
1180	1.59_4
1190	1.62_1
1200	1.64_8
1210	1.67_5
1220	1.70_2

Conductance: 85.

TABLE 35

COPPER (I) CHLORIDE

Eq Wt. 99.00 m.p. 422°C.(695°K.)

$\kappa = 1.8400 + 1.6932.10^{-3}T + 0.4767.10^{-6}T^2$

$\rho = 4.301 - 0.79.10^{-3}T$

$\Lambda = 169.2 \exp(-1102/RT)$

$\eta = 50.4565 - 0.140175T + 1.37677.10^{-4}T^2 - 4.66667.10^{-8}T^3$

T	Λ	κ	ρ	η
700	86.1	3.26	3.748	
710	86.9	3.28	3.740	
720	87.7	3.31	3.732	
730	88.5	3.33	3.724	
740	89.3	3.35_5	3.716	
750	90.2	3.38	3.709	
760	91.0	3.40	3.701	
770	91.9	3.42_5	3.693	
780	92.7	3.45	3.685	
790	93.6	3.47_5	3.677	
800	94.4	3.50	3.669	2.54
810	95.3	3.52_5	3.661	2.44
820	96.2	3.55	3.653	2.36
830	97.1	3.57_5	3.645	2.27
840	98.0	3.60	3.637	2.19
850	98.8	3.62_5	3.630	2.12
860	99.7	3.65	3.622	2.05
870				1.98
880				1.92
890				1.86
900				1.80
910				1.74
920				1.69
930				1.63
940				1.58
950				1.53
960				1.48
970				1.44

Density: 36.

Conductance: 21, 33, 85.

Viscosity: 47.

TABLE 36

SILVER CHLORIDE

Eq. Wt. 143.34 m.p. 455°C.(728°K.)

$\kappa = 7.368 \exp(-947/RT)$

$\rho = 5.489 - 0.849.10^{-3}T$

$\Lambda = 255.1 \exp(-1184/RT)$

$\eta = 6.91305 - 4.47411.10^{-3}T - 6.49368.10^{-6}T^2 + 5.41584.10^{-9}T^3$

T	Λ	κ	ρ	η
730				2.29
740	114.1	3.869	4.861	2.24
750	115.3	3.903	4.852	2.19
760	116.5	3.936	4.844	2.14
770	117.6	3.968	4.835	2.09
780	118.8	3.999	4.827	2.04
790	119.9	4.030	4.818	2.00
800	121.0	4.061	4.810	1.95
810	122.1	4.091	4.801	1.91
820	123.2	4.120	4.793	1.86
830	124.3	4.149	4.784	1.82
840	125.3	4.178	4.776	1.78
850	126.5	4.206	4.767	1.74
860	127.5	4.233	4.759	1.71
870	128.6	4.260	4.750	1.67
880	129.6	4.287	4.742	1.64
890	130.6	4.313	4.733	1.61
900	131.6	4.339	4.725	1.57
910	132.6	4.364	4.716	1.55
920				1.52
930				1.49
940				1.47
950				1.45
960				1.43
970				1.41

Density: 22, 54, 60, 81.

Conductance: 1, 10, 21, 23, 60, 72, 100.

Viscosity: 24, 72.

TABLE 37

ZINC CHLORIDE

Eq. Wt. 68.15 m.p. 318°C.(591°K.)

$\kappa = 1.3973 - 4.5034.10^{-3}T + 3.6428.10^{-6}T^2$

$\rho = 2.690 - 0.512.10^{-3}T$

$\Lambda = 20750 \exp(-13715/RT)$

T	Λ	κ	ρ
720	1.2_7	0.043	2.321
730	1.5_0	0.051	2.316
740	1.7_6	0.060	2.311
750	2.0_3	0.069	2.306
760	2.3_3	0.079	2.301
770	2.6_6	0.089	2.296
780	3.0_0	0.101	2.290
790	3.3_7	0.113	2.286
800	3.7_6	0.126	2.280
810	4.1_8	0.140	2.275
820	4.6_2	0.154	2.270
830	5.0_8	0.169	2.265
840	5.5_7	0.185	2.260
850	6.0_9	0.201	2.255
860	6.6_2	0.219	2.250
870	7.1_8	0.237	2.245
880	7.7_7	0.255	2.239
890	8.3_8	0.275	2.234
900	9.0_2	0.295	2.229
910	9.6_8	0.316	2.224

Density: 36, 40, 56, <u>87</u>, <u>98</u>.

Conductance: 33, <u>94</u>, <u>98</u>.

TABLE 38

CADMIUM CHLORIDE

Eq. Wt. 91.66 m.p. 568°C.(841°K.)

$\varkappa = 1.9571 + 6.1834.10^{-3}T - 1.9576.10^{-6}T^2$

$\rho = 4.078 - 0.82.10^{-3}T$

$\Lambda = 224.4 \exp(-2499/RT)$

$\eta = 799.691 - 2.55839T + 2.73879.10^{-3}T^2 - 9.78643.10^{-7}T^3$

T	Λ	$\varkappa$	ρ	η
840	50.19	1.8557	3.389	
850	51.09	1.8844	3.381	
860	51.98	1.9128	3.373	
870	52.87	1.9408	3.365	2.44
880	53.75	1.9683	3.356	2.31
890	54.63	1.9955	3.348	2.21
900	55.50	2.0223	3.340	2.13
910	56.36	2.0487	3.332	2.07
920	57.22	2.0747	3.324	2.03
930	58.06	2.1003	3.315	1.99
940	58.91	2.1256	3.307	1.95
950	59.75	2.1504	3.299	1.91
960	60.58	2.1748	3.291	1.87
970	61.40	2.1989	3.283	
980	62.22	2.2226	3.274	
990	63.02	2.2458	3.266	
1000	63.83	2.2687	3.258	
1010	64.62	2.2912	3.250	
1020	65.41	2.3133	3.242	
1030	66.19	2.3350	3.233	
1040	66.97	2.3563	3.225	
1050	67.73	2.3772	3.217	
1060	68.49	2.3977	3.209	
1070	69.24	2.4179	3.201	

Density: 15, 54, 66.

Conductance: 19, 21, 27, 33, 51, 66, 94.

Viscosity: 47, 53.

TABLE 39

MERCURY (I) CHLORIDE

Eq. Wt. 236.07 m.p. 525°C.(798°K.)

$\kappa = 5.255 \exp(-2644/RT)$

$\rho = 6.22 - 4.0 \cdot 10^{-3} T$

$\Lambda = 123.1 \exp(-4391/RT)$

T	Λ	κ	ρ
800	$78._0$	0.99_5	3.02
810	$80._5$	1.01_5	2.98
820	$83._0$	1.03_5	2.94

Density: 36.

Conductance: 35.

TABLE 40

MERCURY (II) CHLORIDE

Eq. Wt. 135.76 m.p. 276°C.(549°K.)

$\kappa = -0.6628.10^{-4} + 0.4852.10^{-7}T + 0.2354.10^{-9}T^2$

$\rho = 5.9391 - 2.8624.10^{-3}T$

$\Lambda = 0.370 \exp(-6490/RT)$

$\eta = -4341.632 + 22.96096T - 4.043872.10^{-2}T^2 + 2.372690.10^{-5}T^3$

T	$\Lambda.10^3$	$\kappa.10^5$	ρ	η
550	0.9833	3.1615	4.3648	
560	1.0780	3.4430	4.3362	1.74
570	1.1932	3.7858	4.3075	1.63
580	1.3024	4.1050	4.2789	1.54

Density: 18, 103.

Conductance: 35, 94, 103.

Viscosity: 103.

TABLE 41

INDIUM CHLORIDE

Eq. Wt. 150.22 m.p. 225°C.(498°K.)

$\kappa = -2.0281 + 5.2188.10^{-3}T - 1.0942.10^{-6}T^2$

$\rho = 4.43_7 - 1.40.10^{-3}T$

$\Lambda = 1208 \exp(-3528/RT)$

T	Λ	κ	ρ
500	$34._4$	0.85	3.74_8
510	$37._0$	0.92	3.74_0
520	$39._8$	0.98	3.73_2
530	$42._5$	1.05	3.72_4
540	$45._3$	1.11	3.71_6
550	$48._1$	1.17	3.70_9
560	$50._9$	1.24	3.70_0
570	$53._8$	1.30	3.69_3
580	$56._6$	1.37	3.68_5
590	$59._6$	1.43	3.67_7
600	$62._5$	1.50	3.66_9
610	$65._5$	1.56	3.66_1
620	$68._5$	1.63	3.65_3

Density: 34.

Conductance: 34.

TABLE 42

INDIUM (II) CHLORIDE

Eq. Wt. 92.84 m.p. 235°C.(508°K.)

κ = $-1.2783 + 3.6986.10^{-3}T - 1.4444.10^{-6}T^2$

ρ = $3.86_3 - 1.60.10^{-3}T$

Λ = $288.4 \exp(-3687/RT)$

T	Λ	κ	ρ
510	7.1	0.23_2	3.04_7
520	7.8	0.25_4	3.03_1
530	8.5	0.27_6	3.01_5
540	9.2	0.29_8	2.99_9
550	9.9	0.31_9	2.98_3
560	10.6	0.34_0	2.96_7
570	11.3	0.36_1	2.95_1
580	12.1	0.38_1	2.93_5
590	12.8	0.40_1	2.91_9
600	13.5	0.42_1	2.90_3
610	14.2	0.44_0	2.88_7
620	14.9	0.46_0	2.87_1
630	15.6	0.47_9	2.85_5
640	16.3	0.49_7	2.83_9
650	17.0	0.51_5	2.82_3
660	17.6	0.53_4	2.80_7
670	18.3	0.55_1	2.79_1
680	19.0	0.56_9	2.77_5
690	19.7	0.58_6	2.75_9
700	20.4	0.60_3	2.74_3
710	21.1	0.62_0	2.72_7
720	21.8	0.63_6	2.71_1
730	22.5	0.65_2	2.69_5
740	23.1	0.66_8	2.67_9
750	23.8	0.68_3	2.66_3
760	24.5	0.69_8	2.64_7
770	25.2	0.71_3	2.63_1
780	25.8	0.72_8	2.61_5

Density: 34.

Conductance: 34.

TABLE 43

INDIUM (III) CHLORIDE

Eq. Wt. 73.71 m.p. 586°C.(859°K.)

$\kappa = 1.184 - 0.883.10^{-3}T$

$\rho = 3.94_4 - 2.10.10^{-3}T$

$\Lambda = 4.112 \exp(+2181/RT)$

T	Λ	κ	ρ
860	14.6_4	0.425	2.13_8
870	14.4_8	0.416	2.11_7
880	14.3_1	0.407	2.09_6
890	14.1_4	0.398	2.07_5
900	13.9_7	0.389	2.05_4
910	13.7_9	0.380	2.03_3
920	13.6_2	0.372	2.01_2
930	13.4_3	0.363	1.99_1
940	13.2_4	0.354	1.97_0
950	13.0_5	0.345	1.94_9
960	12.8_6	0.336	1.92_8
970	12.6_6	0.327	1.90_7

Density: 34.

Conductance: 34.

TABLE 44

THALLIUM (I) CHLORIDE

Eq. Wt. 239.85 m.p. 430°C.(703°K.)

κ = 10.790 exp (-3203/RT)

ρ = 6.893 - 1.80.10^{-3}T

Λ = 614.5 exp (-3612/RT)

T	Λ	κ	ρ
710	47.6	1.11_4	5.615
720	49.3	1.15_0	5.597
730	51.0	1.18_6	5.579
740	52.7	1.22_2	5.561
750	54.4	1.25_8	5.543
760	56.2	1.29_4	5.525
770	57.9	1.33_0	5.507
780	59.7	1.36_6	5.489
790	61.5	1.40_2	5.471
800	63.3	1.43_9	5.453
810	65.1	1.47_5	5.435
820	66.9	1.51_1	5.417
830	68.7	1.54_7	5.399
840	70.6	1.58_3	5.381
850	72.4	1.62_0	5.363
860	74.3	1.65_6	5.345
870	76.2	1.69_2	5.327
880	78.1	1.72_8	5.309

Density: 36.

Conductance: 21.

TABLE 45

TIN (II) CHLORIDE

Eq. Wt. 94.81 m.p. 246°C.(519°K.)

$\kappa = -3.1578 + 9.0387.10^{-3}T - 2.7843.10^{-6}T^2$

$\rho = 4.016 - 1.253.10^{-3}T$

$\Lambda = 745.6 \exp(-3604/RT)$

T	Λ	κ	ρ
520	$22._2$	0.79	3.364
530	$24._1$	0.85	3.352
540	$25._9$	0.91	3.339
550	$27._7$	0.97	3.327
560	$29._5$	1.03	3.314
570	$31._3$	1.09	3.302
580	$33._1$	1.15	3.289
590	$34._9$	1.20_5	3.277
600	$36._7$	1.26_5	3.264
610	$38._5$	1.32	3.252
620	$40._3$	1.37_5	3.239
630	$42._1$	1.43	3.227
640	$43._8$	1.48_5	3.214
650	$45._6$	1.54	3.202
660	$47._4$	1.59_5	3.189
670	$49._2$	1.64_5	3.176
680	$51._0$	1.70	3.164

Density: 25, <u>36</u>.

Conductance: <u>35</u>.

TABLE 46

LEAD (II) CHLORIDE

Eq. Wt. 139.06 m.p. 501°C.(774°K.)

$\kappa \doteq 18.093 \exp(-3883/RT)$

$\rho = 4.933 - 1.50.10^{-3}T$

$\Lambda = 1001 \exp(-4514/RT)$

$\eta = 72.9309 - 0.175011 + 1.39742.10^{-4}T^2 - 3.59013.10^{-8}T^3$

T	Λ	κ	ρ	η
780	54.6	1.47_5	3.763	4.40
790	56.6	1.52_5	3.748	4.18
800	58.6	1.57	3.733	3.98
810	60.6	1.62	3.718	3.78
820	62.7	1.67	3.703	3.59
830	64.8	1.71_5	3.688	3.41
840	66.9	1.76_5	3.673	3.24
850	69.0	1.81_5	3.658	3.09
860	71.2	1.86_5	3.643	2.94
870	73.4	1.91_5	3.628	2.80
880	75.6	1.96_5	3.613	2.67
890	77.8	2.01_5	3.598	2.55
900	80.1	2.06_5	3.583	2.44
910	82.3	2.11	3.568	2.34
920	84.6	2.16	3.553	2.24
930	87.0	2.21	3.538	2.16
940	89.3	2.26	3.523	2.08
950	91.7	2.31	3.508	2.01
960	94.1	2.36	3.493	1.94
970	96.5	2.41_5	3.478	1.89

Density: 15, 40, 54.

Conductance: 7, 51, 72, 85, 96.

Viscosity: 8, 72.

TABLE 47

BISMUTH (III) CHLORIDE

Eq. Wt. 105.12 m.p. 230°C.(503°K.)

$\kappa = -0.7226 + 2.8419.10^{-3}T - 1.2740.10^{-6}T^2$

$\rho = 5.073 - 2.30.10^{-3}T$

$\Lambda = 98.6 \exp(-2253/RT)$

$\eta = 0.3787 \exp(4693/RT)$

T	Λ	κ	ρ	η
510	10.6_6	0.395	3.900	
520	11.1_4	0.411	3.877	
530	11.6_1	0.426	3.854	
540	12.0_8	0.441	3.831	30.0
550	12.5_6	0.445	3.808	27.7
560	13.0_3	0.469	3.785	25.7
570	13.5_1	0.483	3.762	23.9
580	13.9_8	0.497	3.739	22.2
590	14.4_5	0.511	3.716	20.7
600	14.9_1	0.524	3.693	19.4
610	15.3_8	0.537	3.670	18.2
620	15.8_4	0.550	3.647	

Density: 25, <u>32</u>.

Conductance: 25, <u>32</u>.

Viscosity: <u>16</u>.

TABLE 48

TELLURIUM (II) CHLORIDE

Eq. Wt. 99.26 m.p. 209°C.(482°K.)

$\kappa = -0.2949 + 0.3715.10^{-3}T + 0.6918.10^{-6}T^2$

T	κ
480	0.043
490	0.053
500	0.064
510	0.075
520	0.085
530	0.096
540	0.107
550	0.119
560	0.130
570	0.142
580	0.153

Conductance: 32.

TABLE 49

TELLURIUM (IV) CHLORIDE

Eq. Wt. 67.36   m.p. 224 °C. (497 °K.)

$$\kappa = -0.6702 + 1.930.10^{-3}T - 0.7617.10^{-6}T^{2}$$

T	κ
510	0.116_0
520	0.127_5
530	0.138_5
540	0.150_0
550	0.161_0
560	0.171_5
570	0.182_5
580	0.193_0
590	0.203_5

Conductance: 32.

Bromides

$LiBr$

$NaBr$

KBr

$RbBr$

$CsBr$

$MgBr_2$

$CaBr_2$

$SrBr_2$

$BaBr_2$

$LaBr_3$

$NdBr_3$

$CuBr$

$AgBr$

$ZnBr_2$

$CdBr_2$

$HgBr_2$

$InBr_3$

$TlBr$

$PbBr_2$

$BiBr_3$

TABLE 50

LITHIUM BROMIDE

Eq. Wt. 86.86 m.p. 547°C. (820°K.)

$$\kappa = -1.1362 + 8.6159.10^{-3}T - 1.8612.10^{-6}T^2$$

$$\rho = 3.0658 - 0.6520.10^{-3}T$$

$$\Lambda = 585.3 \exp(-2117/RT)$$

$$\eta = 6.868.10^{-2} \exp(5355/RT)$$

T	Λ	κ	ρ	η
830	162.83	4.7328	2.4008	
840	165.16	4.7879	2.5246	
850	167.47	4.8426	2.5181	
860	169.79	4.8969	2.5116	
870	172.11	4.9509	2.5051	1.52_1
880	174.43	5.0045	2.4986	1.46_9
890	176.75	5.0577	2.4920	1.41_9
900	179.06	5.1105	2.4855	1.37_2
910	181.38	5.1630	2.4790	1.32_7
920	183.69	5.2151	2.4725	1.28_5
930	186.01	5.2668	2.4660	1.24_6
940	188.34	5.3187	2.4594	1.20_8
950	190.63	5.3692	2.4529	1.17_1
960	192.94	5.4198	2.4464	1.13_8
970	195.25	5.4700	2.4399	1.10_5
980	197.57	5.5199	2.4334	1.07_4
990	199.88	5.5694	2.4268	1.04_5
1000	202.18	5.6185	2.4203	1.01_6
1010	204.48	5.6672	2.4138	0.99_0
1020	206.79	5.7156	2.4073	0.96_5
1030				0.94_0
1040				0.91_7

Density: 3, 81, 82.

Conductance: 82.

Viscosity: 47, 102.

TABLE 51

SODIUM BROMIDE

Eq. Wt. 102.91 m.p. 747°C.(1020°K.)

κ = 9.097 exp (-2324/RT)

ρ = 3.1748 - 0.8169.10^{-3}T

Λ = 622.7 exp (-3228/RT)

η = 64.3240 - 0.152525T + 1.23215.$10^{-4}T^2$ - 3.34241.$10^{-8}T^3$

T	Λ	κ	ρ	η
1030	128.9	2.922	2.3334	
1040	130.8	2.954	2.3252	
1050	132.6	2.986	2.3171	
1060	134.5	3.018	2.3089	1.28_3
1070	136.4	3.049	2.3007	1.24_5
1080	138.3	3.080	2.2925	1.21_0
1090	140.1	3.111	2.2844	1.17_8
1100	142.0	3.141	2.2762	1.14_9
1110	143.9	3.172	2.2680	1.12_3
1120	145.8	3.202	2.2599	1.09_8
1130	147.7	3.231	2.2517	1.07_6
1140	149.6	3.261	2.2435	1.05_6
1150	151.5	3.290	2.2353	1.03_8
1160	153.4	3.319	2.2272	1.02_2
1170	155.3	3.348	2.2190	1.00_6
1180	157.2	3.376	2.2109	0.99_2
1190	159.1	3.404	2.2027	0.97_9
1200	161.0	3.432	2.1945	0.96_7
1210	162.9	3.460	2.1864	0.95_5
1220	164.8	3.488	2.1782	

Density: 3, 25, <u>81</u>, <u>82</u>.

Conductance: 10, <u>82</u>.

Viscosity: 12, <u>102</u>.

TABLE 52

POTASSIUM BROMIDE

Eq. Wt. 119.01 m.p. 734°C.(1007°K.)

$\kappa = -6.6001 + 13.1823.10^{-3}T - 5.0051.10^{-6}T^2$

$\rho = 2.9583 - 0.8253.10^{-3}T$

$\Lambda = 591.1 \exp(-3747/RT)$

$\eta = 128.399 - 0.334905T + 2.94450.10^{-4}T^2 - 8.66540.10^{-8}T^3$

T	Λ	κ	ρ	η
1020	92.1	1.639	2.1165	1.18_3
1030	94.1	1.668	2.1082	1.14_0
1040	96.1	1.696	2.1000	1.10_1
1050	98.0	1.723	2.0917	1.06_7
1060	99.9	1.749	2.0835	1.03_7
1070	101.8	1.775	2.0752	1.01_2
1080	103.6	1.799	2.0670	0.98_9
1090	105.3	1.822	2.0587	0.96_9
1100	107.0	1.844	2.0505	0.95_2
1110	108.7	1.865	2.0422	0.93_6
1120	110.3	1.886	2.0340	0.92_1
1130	111.9	1.905	2.0257	0.90_7
1140	113.4	1.923	2.0175	0.89_3
1150	114.9	1.940	2.0092	0.87_8
1160	116.4	1.957	2.0010	0.86_3
1170	117.8	1.972	1.9927	0.84_7
1180	119.1	1.986	1.9844	0.82_8
1190	120.4	1.999	1.9762	
1200	121.6	2.011	1.9679	

Density: 3, 15, 26, 66, 81, 82.

Conductance: 10, 26, 33, 66, 82, 100.

Viscosity: 6, 78, 103.

TABLE 53

RUBIDIUM BROMIDE

Eq. Wt. 165.40 m.p. 682°C.(955°K.)

$\kappa = -5.6453 + 11.1780.10^{-3}T - 4.3285.10^{-6}T^2$

$\rho = 3.7390 - 1.0718.10^{-3}T$

$\Lambda = 611.1 \exp(-4171/RT)$

$\eta = 51.9396 - 0.131564T + 1.14887.10^{-4}T^2 - 3.39298.10^{-8}T^3$

T	Λ	κ	ρ	η
960				1.49_9
970	68.9	1.125	2.6994	1.45_3
980	70.9	1.152	2.6886	1.41_0
990	72.8	1.179	2.6779	1.37_0
1000	74.7	1.204	2.6672	1.33_3
1010	76.5	1.229	2.6565	1.29_8
1020	78.3	1.253	2.6458	1.26_6
1030	80.1	1.276	2.6350	1.23_6
1040	81.8	1.298	2.6243	1.20_8
1050	83.5	1.319	2.6136	1.18_2
1060	85.1	1.340	2.6029	1.15_8
1070	86.7	1.359	2.5922	1.13_5
1080	88.3	1.378	2.5815	1.11_3
1090	89.8	1.396	2.5707	1.09_2
1100	91.3	1.413	2.5600	1.07_2
1110	92.7	1.429	2.5493	1.05_2
1120	94.1	1.444	2.5386	1.03_3
1130	95.4	1.459	2.5279	1.01_4
1140	96.7	1.472	2.5171	
1150	98.0	1.485	2.5064	
1160	99.2	1.497	2.4957	
1170	100.4	1.508	2.4850	
1180	101.5	1.518	2.4743	

Density: 25, 82.

Conductance: 82.

Viscosity: 102.

TABLE 54

CESIUM BROMIDE

Eq. Wt. 212.83 m.p. 636°C. (909°K.)

$\kappa = -2.5553 + 4.7068.10^{-3}T - 1.1218.10^{-6}T^2$

$\rho = 4.2449 - 1.2234.10^{-3}T$

$\Lambda = 1160 \exp(-5533/RT)$

T	Λ	κ	ρ
910	54.3	0.799	3.1316
920	56.3	0.826	3.1194
930	58.3	0.852	3.1071
940	60.4	0.878	3.0949
950	62.4	0.904	3.0827
960	64.4	0.929	3.0704
970	66.4_5	0.955	3.0582
980	68.5	0.980	3.0460
990	70.5	1.005	3.0337
1000	72.5	1.030	3.0215
1010	74.6	1.054	3.0093
1020	76.6	1.079	2.9970
1030	78.6	1.103	2.9848
1040	80.6_5	1.126	2.9726
1050	82.7	1.150	2.9603
1060	84.7	1.173	2.9481
1070	86.7_5	1.197	2.9359
1080	88.8	1.220	2.9236
1090	90.8	1.242	2.9114
1100	92.8_5	1.265	2.8992
1110	94.9	1.287	2.8869
1120	96.9	1.309	2.8747
1130	99.0	1.331	2.8625
1140	101.0	1.353	2.8502

Density: 25, 74, 82.

Conductance: 82.

TABLE 55

MAGNESIUM BROMIDE

Eq. Wt. 92.08 m.p. 714°C.(987°K.)

$\kappa = -0.4257 + 0.5717.10^{-3}T + 0.5784.10^{-6}T^2$

$\rho = 3.087 - 0.478.10^{-3}T$

$\Lambda = 385.5 \exp(-5404/RT)$

T	Λ	κ	ρ
1000	25.5_6	0.724	2.510
1020	26.8_9	0.759	2.600
1040	28.2_4	0.795	2.590
1060	29.6_2	0.830	2.581
1080	31.0_2	0.866	2.571
1100	32.4_6	0.903	2.562
1120	33.9_2	0.940	2.552
1140	35.4_1	0.978	2.542
1160	36.9_3	1.016	2.533
1180	38.4_7	1.054	2.523
1200	40.0_4	1.093	2.514
1220	41.6_5	1.133	2.504
1240	43.2_8	1.173	2.495

Density: 89, 96.

Conductance: 94.

TABLE 56

CALCIUM BROMIDE

Eq. Wt. 99.91 m.p. 730°C.(1003°K.)

κ = 12.820 exp (-4475/RT)

ρ = $3.618 - 0.500 \cdot 10^{-3}T$

Λ = 506.7 exp (-4901/RT)

T	Λ	κ	ρ
1020	45.3_0	1.409	3.108
1040	47.4_2	1.470	3.098
1060	49.5_6	1.532	3.088
1080	51.7_1	1.593	3.078
1100	53.8_8	1.655	3.068
1120	56.0_7	1.716	3.058
1140	58.2_8	1.778	3.048
1160	60.5_0	1.840	3.038
1180	62.7_3	1.901	3.028
1200	64.9_7	1.963	3.018
1220	67.2_2	2.024	3.008
1240	69.4_8	2.085	2.998
1260	71.7_6	2.146	2.988
1280	74.0_4	2.207	2.978

Density: 89, 96.

Conductance: 94.

TABLE 57

STRONTIUM BROMIDE

Eq. Wt. 123.73 m.p. 643°C.(916°K.)

$\kappa = -4.0086 + 6.8056.10^{-3}T - 1.7296.10^{-6}T^2$

$\rho = 4.390 - 0.745.10^{-3}T$

$\Lambda = 806.5 \exp(-6183/RT)$

T	Λ	κ	ρ
940	28.8_5	0.860	3.690
960	31.3_3	0.931	3.675
980	33.7_9	1.000	3.660
1000	36.2_3	1.067	3.646
1020	38.6_3	1.134	3.631
1040	41.0_1	1.198	3.616
1060	43.3_6	1.262	3.601
1080	45.6_9	1.324	3.586
1100	47.9_8	1.385	3.571
1120	50.2_4	1.444	3.556
1140	52.4_8	1.502	3.541
1160	54.6_9	1.559	3.526
1180	56.8_6	1.614	3.511

Density: 89, 96.

Conductance: 94.

TABLE 58

BARIUM BROMIDE

Eq. Wt. 148.60 m.p. 847°C.(1150°K.)

κ = 13.539 exp (-5441/RT)

ρ = $5.035 - 0.924.10^{-3}T$

Λ = 693.8 exp (-6162/RT)

T	Λ	κ	ρ
1140	45.7_5	1.226	3.982
1150	46.8_2	1.252	3.972
1160	47.9_0	1.278	3.963
1170	48.9_9	1.304	3.954
1180	50.0_9	1.330	3.945
1190	51.2_0	1.356	3.935
1200	52.3_1	1.382	3.926
1210	53.4_3	1.408	3.917
1220	54.5_6	1.435	3.908
1230	55.7_0	1.461	3.898
1240	56.8_4	1.488	3.889
1250	58.0_0	1.514	3.880
1260	59.1_5	1.541	3.871
1270	60.3_2	1.567	3.862
1280	61.4_9	1.594	3.852
1290	62.6_7	1.621	3.843
1300	63.8_5	1.647	3.834
1310	65.0_5	1.674	3.825
1320	66.2_4	1.701	3.815
1330	67.4_5	1.728	3.806

Density: 66, 91, 96.

Conductance: 94.

TABLE 59

LANTHANUM (III) BROMIDE

Eq. Wt. 126.22 m.p. 783°C.(1056°K.)

κ = 106.15 exp (-10353/RT)

ρ = 5.0351 - 0.096.10^{-3}T

Λ = 2770 exp (-10402/RT)

T	Λ	κ	ρ
1070	20.8_5	0.815	4.9324
1080	21.8_2	0.853	4.9314
1090	22.8_1	0.891	4.9305
1100	23.8_3	0.931	4.9295
1110	24.8_7	0.971	4.9285
1120	25.9_4	1.013	4.9276
1130	27.0_4	1.055	4.9266
1140	28.1_6	1.099	4.9257
1150	29.3_1	1.144	4.9247
1160	30.4_8	1.189	4.9237
1170	31.6_8	1.236	4.9228
1180	32.9_1	1.283	4.9218
1190	34.1_6	1.332	4.9209

Density: <u>83</u>.

Conductance: <u>83</u>.

TABLE 60

NEODYMIUM (III) BROMIDE

Eq. Wt. 128.01 m.p. 684°C.(957°K.)

$$\kappa = 3.2616 - 7.7595.10^{-3}T + 4.8482.10^{-6}T^2$$

$$\rho = 4.9750 - 0.7779.10^{-3}T$$

$$\Lambda = 4137 \exp(-11834/RT)$$

T	Λ	κ	ρ
960	8.4_9	0.281	4.2282
970	8.9_9	0.297	4.2204
980	9.5_3	0.314	4.2127
990	10.0_9	0.331	4.2049
1000	10.6_8	0.350	4.1971
1010	11.3_1	0.370	4.1893
1020	11.9_7	0.391	4.1815
1030	12.6_6	0.413	4.1738
1040	13.3_8	0.436	4.1660
1050	14.1_4	0.459	4.1582
1060	14.9_3	0.484	4.1504
1070	15.7_5	0.510	4.1426
1080	16.6_0	0.536	4.1349
1090	17.4_9	0.564	4.1271
1100	18.4_1	0.592	4.1193
1110	19.3_7	0.622	4.1115
1120	20.3_6	0.653	4.1038
1130	21.3_8	0.684	4.0960
1140	22.4_3	0.716	4.0882
1150	23.5_3	0.750	4.0804

Density: 83.

Conductance: 83.

TABLE 61

COPPER (I) BROMIDE

Eq. Wt. 143.46 m.p. 504°C.(777°K.)

$$\kappa = 6.342 \exp(-1416/RT)$$

T	κ
770	2.514
780	2.544
790	2.573
800	2.602
810	2.631
820	2.659

Conductance: 41.

TABLE 62

SILVER BROMIDE

Eq. Wt. 187.0 m.p. 454 °C. (707 °K.)

$\kappa = 5.183 \exp(-831/RT)$

$\rho = 6.307 - 1.035 . 10^{-3} T$

$\Lambda = 208.8 \exp(-1087/RT)$

$\eta = 0.3806 \exp(3088/RT)$

T	Λ	κ	ρ	η
720	97.9	2.899	5.562	3.30
730	98.8_5	2.923	5.551	3.20
740	99.8	2.945	5.541	3.11
750	100.7	2.968	5.531	3.02
760	101.7	2.989	5.520	2.94
770	102.6	3.011	5.510	2.86
780	103.5_5	3.032	5.500	2.79
790	104.4_5	3.053	5.489	2.72
800	105.3	3.073	5.479	2.66
810	106.2	3.093	5.469	2.59
820	107.1	3.112	5.458	2.53
830	107.9_5	3.131	5.448	2.48
840	108.8	3.150	5.438	2.42
850	109.6_5	3.169	5.427	2.37
860	110.5	3.187	5.417	2.32
870	111.3	3.205	5.407	
880	112.1_5	3.222	5.396	
890	112.9_5	3.240	5.386	
900	113.8	3.257	5.376	
910	114.6	3.273	5.365	
920	115.3_5	3.290	5.355	
930	116.1_5	3.306	5.344	

Density: 3, 22, <u>54</u>, <u>81</u>.

Conductance: 1, <u>10</u>, 21, 23, <u>72</u>, <u>100</u>.

Viscosity: 24, <u>72</u>.

TABLE 63

ZINC BROMIDE

Eq. Wt. 112.61 m.p. 394°C.(667°K.)

$\kappa = 1.2220 - 3.9416.10^{-3}T + 3.1971.10^{-6}T^2$

$\rho = 4.113 - 0.959.10^{-3}T$

$\Lambda = 3565 \exp(-14604/RT)$

$\eta = 400$ cp. at 400°C.

T	Λ	κ	ρ
670	0.52_9	0.016	3.470
680	0.65_2	0.020	3.461
690	0.79_7	0.024	3.451
700	0.96_4	0.029	3.442
710	1.15_2	0.035	3.432
720	1.36_3	0.041	3.423
730	1.59_6	0.048	3.413
740	1.85_1	0.056	3.403
750	2.12_9	0.064	3.394
760	2.43_0	0.073	3.384
770	2.75_4	0.083	3.375
780	3.10_1	0.093	3.365
790	3.47_2	0.103	3.355
800	3.86_6	0.115	3.346
810	4.28_4	0.127	3.336
820	4.72_6	0.140	3.327
830	5.19_3	0.153	3.317
840	5.68_4	0.167	3.307
850	6.19_9	0.182	3.298
860	6.74_0	0.197	3.288
870	7.30_5	0.213	3.279
880	7.89_6	0.229	3.269
890	8.51_3	0.246	3.259
900	9.15_5	0.264	3.250

Density: 43, 89, 96.

Conductance: 94, 98.

Viscosity: 98.

TABLE 64

CADMIUM BROMIDE

Eq. Wt. 136.12 m.p. 567°C.(840°K.)

$\kappa = -1.6351 + 4.1892.10^{-3}T - 1.1777.10^{-6}T^2$

$\rho = 5.611 - 1.80.10^{-3}T$

$\Lambda = 295.3 \exp(-3565/RT)$

$\eta = 0.1893 \exp(4556/RT)$

T	Λ	κ	ρ	η
850	35.8_4	1.075	4.082	
860	36.7_3	1.097	4.064	2.72
870	37.6_2	1.118	4.046	2.64
880	38.5_0	1.139	4.028	2.56
890	39.3_9	1.160	4.010	2.49
900	40.2_8	1.181	3.992	2.42
910	41.1_7	1.202	3.974	2.35
920	42.0_5	1.222	3.956	2.29
930	42.9_4	1.242	3.938	2.23
940	43.8_3	1.262	3.920	2.17
950	44.7_1	1.282	3.902	
960	45.6_0	1.301	3.884	
970	46.4_9	1.320	3.866	
980	47.3_8	1.339	3.848	
990	48.2_6	1.358	3.830	
1000	49.1_5	1.376	3.812	
1010	50.0_4	1.395	3.794	
1020	50.9_2	1.413	3.776	
1030	51.8_1	1.430	3.758	
1040	52.7_0	1.448	3.740	
1050	53.5_8	1.465	3.722	
1060	54.4_7	1.482	3.704	

Density: 54.

Conductance: 94.

Viscosity: 53.

TABLE 65

MERCURY (II) BROMIDE

Eq. Wt. 180.22 m.p. 238°C.(511°K.)

$\kappa = -0.8258.10^{-3} + 0.1972.10^{-5}T - 0.1812.10^{-9}T^2$

$\rho = 6.7715 - 3.2331.10^{-3}T$

$\Lambda = 2.074 \exp(-6167/RT)$

T	Λ	κ	ρ	η
510	0.4672	1.3279	5.1226	
520	0.5333	1.5064	5.0903	
530	0.6002	1.6846	5.0580	2.16
540	0.6679	1.8624	5.0256	1.97
550	0.7363	2.0399	4.9933	1.82
560	0.8054	2.2170	4.9610	

Density: 18, 103.

Conductance: 94, 103.

Viscosity: 6, 58.

TABLE 66

INDIUM (III) BROMIDE

Eq. Wt. 118.17 m.p. 436°C.(709°K.)

κ = $-0.1914 + 1.0056.10^{-3}T - 0.7065.10^{-6}T^2$

ρ = $4.184 - 1.50.10^{-3}T.$

Λ = $6.66 \exp(-91/RT)$

T	Λ	κ	ρ
710	6.31	0.166_4	3.11_9
720	6.33	0.166_4	3.10_4
730	6.36	0.166_2	3.08_9
740	6.38	0.165_9	3.07_4
750	6.39	0.165_4	3.05_9
760	6.40	0.164_8	3.04_4
770	6.40	0.164_0	3.02_9
780	6.40	0.163_1	3.01_4
790	6.39	0.162_1	2.99_9
800	6.37	0.160_9	2.98_4
810	6.35	0.159_6	2.96_9

Density: <u>34</u>.

Conductance: <u>34</u>.

TABLE 67

THALLIUM (I) BROMIDE

Eq. Wt. 284.31 m.p. 459°C.(732°K.)

$$\kappa = 3.1380 - 7.3502.10^{-3}T + 5.7876.10^{-6}T^2$$

T	κ
630	0.80
640	0.80_5
650	0.80_5
660	0.81
670	0.81
680	0.82
690	0.82
700	0.83
710	0.84
720	0.85
730	0.86
740	0.87
750	0.88
760	0.89_5
770	0.91
780	0.93
790	0.94
800	0.96
810	0.98
820	1.00
830	1.02
840	1.05
850	1.07
860	1.10
870	1.12

Conductance: 21.

TABLE 68

LEAD (II) BROMIDE

Eq. Wt. 183.52 m.p. 373°C.(646°K.)

κ = $-3.4892 + 8.7490.10^{-3}T - 3.7998.10^{-6}T^2$

ρ = $5.432 - 1.45.10^{-3}T$

Λ = $864.5 \exp(-4594/RT)$

η = $4.245.10^{-2} \exp(6964/RT)$

T	Λ	κ	ρ	η
650	24.2_1	0.592	4.489_5	
660	25.8_3	0.630	4.475	
670	27.4_4	0.667	4.460_5	
680	29.0_2	0.703	4.446	
690	30.5_8	0.739	4.431_5	
700	32.1_3	0.773	4.417	5.57
710	33.6_4	0.807	4.402_5	5.25
720	35.1_4	0.840	4.388	4.96
730	36.6_2	0.873	4.373_5	4.69
740	38.0_7	0.904	4.359	4.44
750	39.5_0	0.935	4.344_5	4.21
760	40.9_1	0.965	4.330	4.00
770	42.3_0	0.995	4.315_5	3.80
780				3.62
790				3.45
800				3.29
810				3.15
820				3.01

Density: 15, 54.

Conductance: 7, 72.

Viscosity: 8, 72.

TABLE 69

BISMUTH (III) BROMIDE

Eq. Wt. 149.58 m.p. 218°C.(491°K.)

$\kappa = -0.9532 + 3.5555.10^{-3}T - 2.4159.10^{-6}T^2$

$\rho = 5.958 - 2.6.10^{-3}T$

$\Lambda = 191.7 \exp(-731/RT)$

T	Λ	κ	ρ
510	7.5	0.23	4.632
530	8.2	0.25	4.580
550	9.0	0.27	4.528
570	9.6	0.29	4.476
590	10.3	0.30	4.424
610	10.8	0.32	4.372
630	11.4	0.33	4.320
650	11.8	0.34	4.268
670	12.2	0.34	4.216
690	12.6	0.35	4.164
710	12.9	0.35	4.112
730	13.0	0.35	4.060
750	13.2	0.35	4.008
770	13.3	0.35	3.956
790	13.3	0.35	3.904
810	13.3	0.34	3.852
830	13.1	0.33	3.800
850	12.9	0.32	3.748
870	12.6	0.31	3.696
890	12.2	0.30	3.644
910	11.7	0.28	3.592
930	11.2	0.26	3.540
950	10.5	0.24	3.488
970	9.7	0.22	3.436

Density: 25.

Conductance: 104.

Iodides

LiI

NaI

KI

RbI

CsI

MgI_2

CaI_2

SrI_2

BaI_2

AlI_3

LaI_3

CeI_3

PrI_3

NdI_3

AgI

ZnI_2

CdI_2

HgI_2

GaI_2

InI_3

TlI

PbI_2

BiI_3

TABLE 70

LITHIUM IODIDE

Eq. Wt. 133.86 m.p. 469°C (742°K)

$\kappa = 6.914 \exp(-949/RT)$

$\rho = 3.7902 - 0.9176 \cdot 10^{-3}T$

$\Lambda = 396.3 \exp(-1375/RT)$

$\eta = 17.1214 - 3.14016 \cdot 10^{-2}T + 1.54286 \cdot 10^{-5}T^2$

T	Λ	κ	ρ	η
750	157.8	3.65_5	3.1020	2.25
760	159.6	3.69	3.0928	2.17
770	161.4	3.72	3.0836	2.09
780	163.2	3.75	3.0745	2.01
790	164.9	3.77_5	3.0653	1.94
800	166.7	3.80_5	3.0561	1.87
810	168.4	3.83_5	3.0469	1.81
820	170.2	3.86	3.0378	1.75
830	171.9	3.89	3.0286	1.69
840	173.6	3.91_5	3.0194	1.63
850	175.3	3.94	3.0102	1.58
860	177.0	3.97	3.0011	1.53
870	178.7	3.99	2.9919	1.48
880	180.3	4.02	2.9827	1.44
890	182.0	4.04	2.9735	1.39
900	183.6	4.06_5	2.9644	1.36
910	185.3	4.09	2.9552	1.32
920	186.9	4.11_5	2.9460	1.29
930	188.6	4.13_5	2.9368	
940	190.2	4.16	2.9277	

Density: 82.

Conductance: 82.

Viscosity: 47.

TABLE 71

SODIUM IODIDE

Eq. Wt. 149.92 m.p. 660°C.(933°K.)

κ = 8.292 exp (-2423/RT)

ρ = 3.6274 - 0.9491.10^{-3}T

Λ = 697.1 exp (-3230/RT)

η = 4.001.10^{-2} exp (7209/RT)

T	Λ	κ	ρ	η
940	124.2	2.266	2.7352	1.90
950	126.3	2.297	2.7258	1.82
960	128.5	2.328	2.7163	1.75
970	130.6	2.359	2.7068	1.68
980	132.8	2.389	2.6973	1.62
990	135.0	2.419	2.6878	1.56
1000	137.1	2.449	2.6783	1.51
1010	139.3	2.479	2.6688	1.45
1020	141.4	2.509	2.6593	1.40
1030	143.6	2.538	2.6498	1.35
1040	145.8	2.567	2.6403	1.31
1050	147.9	2.596	2.6308	1.27
1060	150.1	2.624	2.6214	1.23
1070	152.3	2.653	2.6119	1.19
1080	154.5	2.681	2.6024	1.15
1090	156.6	2.709	2.5929	1.12
1100	158.8	2.737	2.5834	1.08
1110	161.0	2.764	2.5739	1.05
1120	163.2	2.791	2.5644	1.02
1130	165.4	2.818	2.5549	0.99
1140	167.6	2.845	2.5454	0.96
1150	169.8	2.872	2.5359	0.94
1160	172.0	2.898	2.5264	0.91
1170	174.2	2.924	2.5170	0.89
1180	176.4	2.950	2.5076	
1190	178.6	2.976	2.4980	

Density: 25, <u>66</u>, <u>82</u>.

Conductance 2, 10, <u>66</u>, <u>82</u>.

Viscosity: <u>47</u>.

TABLE 72

POTASSIUM IODIDE

Eq. Wt. 166.02 m.p. 681°C.(954°K.)

$$\kappa = -6.1952 + 12.6232.10^{-3}T - 5.0591.10^{-6}T^2$$

$$\rho = 3.3594 - 0.9557.10^{-3}T$$

$$\Lambda = 541.2 \exp(-3442/RT)$$

$$\eta = 81.1782 - 0.187839T + 1.48784.10^{-4}T^2 - 4.00000.10^{-8}T^3$$

T	Λ	κ	ρ	η
1000	$94._5$	1.36_9	2.4037	
1010	$96._4$	1.39_3	2.3941	
1020	$98._7$	1.41_7	2.3846	
1030	$100._6$	1.43_9	2.3750	1.84
1040	$102._5$	1.46_1	2.3655	1.76
1050	$104._4$	1.48_2	2.3559	1.68
1060	$106._2$	1.50_1	2.3464	1.60
1070	$108._0$	1.51_9	2.3368	1.53
1080	$109._6$	1.53_7	2.3272	1.47
1090	$111._3$	1.55_3	2.3177	1.40
1100	$112._8$	1.56_9	2.3081	1.34
1110	$114._4$	1.58_3	2.2986	1.29
1120	$115._8$	1.59_7	2.2890	1.24
1130	$117._2$	1.60_9	2.2795	1.19
1140	$118._5$	1.62_0	2.2699	1.14
1150	$119._8$	1.63_1	2.2603	1.10
1160	$121._0$	1.64_0	2.2508	1.05
1170	$122._1$	1.64_9	2.2412	1.01
1180	$123._2$	1.65_6	2.2317	

Density: 26, 66, 79, 81.

Conductance: 10, 26, 33, 66, 79.

Viscosity: 47.

TABLE 73

RUBIDIUM IODIDE

Eq. Wt. 212.40 m.p. 647 °C. (920 °K.)

κ = $-2.5050 + 5.3229.10^{-3}T - 1.8114.10^{-6}T^2$

ρ = $3.9499 - 1.1435.10^{-3}T$

Λ = $568.1 \exp(-3999/RT)$

T	Λ	κ	ρ
930	64.7	0.879	2.8864
940	66.3	0.898	2.8750
950	68.0	0.917	2.8636
960	69.7	0.936	2.8521
970	71.3	0.954	2.8407
980	73.0	0.972	2.8293
990	74.6	0.989	2.8178
1000	76.2	1.007	2.8064
1010	77.8	1.023	2.7950
1020	79.3	1.040	2.7835
1030	80.9	1.056	2.7721
1040	82.4	1.072	2.7607
1050	84.0	1.087	2.7492
1060	85.5	1.102	2.7378
1070	87.0	1.117	2.7264
1080	88.5	1.131	2.7149
1090	89.9	1.145	2.7035
1100	91.4	1.158	2.6921
1110	92.8	1.172	2.6806
1120	94.3	1.184	2.6692
1130	95.7	1.197	2.6577
1140	97.0	1.209	2.6463
1150	98.4	1.221	2.6349
1160	99.8	1.232	2.6234
1170	101.1	1.243	2.6120
1180	102.4	1.254	2.6006

Density: 25, 82.

Conductance: 82.

TABLE 74

CESIUM IODIDE

Eq. Wt. 259.85 m.p. 626°C.(899°K.)

$\varkappa = -2.4630 + 4.5942 . 10^{-3} T - 1.2749 10^{-6} T^2$

$\rho = 4.2410 - 1.1834 . 10^{-3} T$

$\Lambda = 1125 \exp(-5450/RT)$

T	Λ	$\varkappa$	ρ
920	56.43	0.6846	3.1523
930	58.49	0.7069	3.1404
940	60.55	0.7290	3.1286
950	62.60	0.7509	3.1168
960	64.64	0.7725	3.1049
970	66.68	0.7938	3.0931
980	68.71	0.8149	3.0813
990	70.73	0.8357	3.0694
1000	72.77	0.8563	3.0576
1010	74.78	0.8766	3.0458
1020	76.79	0.8967	3.0339
1030	78.80	0.9165	3.0221
1040	80.79	0.9360	3.0103
1050	82.78	0.9553	2.9984
1060	84.77	0.9744	2.9866
1070	86.75	0.9932	2.9748
1080	88.72	1.0117	2.9629
1090	90.68	1.0300	2.9511
1100	92.64	1.0480	2.9393
1110	94.59	1.0658	2.9274
1120	96.54	1.0833	2.9156
1130	98.48	1.1005	2.9038

Density: 25, 74, 82.

Conductance: 82.

TABLE 75

MAGNESIUM IODIDE

Eq. Wt. 139.08 m.p. 650 °C. (923 °K.)

$\kappa = -0.7656 + 0.8785 . 10^{-3} T + 0.4299 . 10^{-6} T^2$

$\rho = 3.642 - 0.651 . 10^{-3} T$

$\Lambda = 751.1 \exp(-6752/RT)$

T	Λ	κ	ρ
920	18.5_8	0.406	3.043
940	20.2_0	0.440	3.030
960	21.8_5	0.474	3.017
980	23.5_3	0.508	3.004
1000	25.2_4	0.543	2.991
1020	26.9_8	0.578	2.978
1040	28.7_6	0.613	2.965
1060	30.5_6	0.649	2.952
1080	32.4_0	0.685	2.939
1100	34.2_7	0.721	2.926
1120	36.1_7	0.758	2.913
1140	38.1_1	0.795	2.900
1160	40.0_8	0.832	2.887
1180	42.0_9	0.870	2.874

Density: 89, 96.

Conductance: 94.

TABLE 76

CALCIUM IODIDE

Eq. Wt. 146.96 m.p. 784°C.(1057°K.)

κ = $-4.6282 + 8.2567.10^{-3}T - 2.6610.10^{-6}T^2$

ρ = $4.233 - 0.751.10^{-3}T$

Λ = $545.6 \exp(-5093/RT)$

T	Λ	κ	ρ
1060	48.49	1.134_0	3.437
1070	49.70	1.159_9	3.429
1080	50.90	1.185_2	3.422
1090	52.08	1.210_1	3.414
1100	53.25	1.234_4	3.407
1110	54.39	1.258_1	3.399
1120	55.52	1.281_3	3.392
1130	56.63	1.304_0	3.384
1140	57.72	1.326_2	3.377
1150	58.79	1.347_8	3.369
1160	59.84	1.368_9	3.362
1170	60.88	1.389_5	3.354
1180	61.89	1.409_5	3.347
1190	62.89	1.429_0	3.339
1200	63.86	1.448_0	3.332
1210	64.83	1.466_4	3.324
1220	65.76	1.484_3	3.317
1230	66.96	1.501_7	3.309
1240	67.59	1.518_6	3.302
1250	68.48	1.534_9	3.294
1260	69.33	1.550_6	3.287
1270	70.18	1.565_9	3.279
1280	70.99	1.580_6	3.272
1290	71.81	1.594_8	3.264

Density: <u>89</u>, <u>96</u>.

Conductance <u>94</u>.

TABLE 77

STRONTIUM IODIDE

Eq. Wt. 170.74 m.p. 515°C.(788°K.)

$\kappa = -1.8747 + 3.3276 \cdot 10^{-3}T - 0.5169 \cdot 10^{-6}T^2$

$\rho = 4.803 - 0.885 \cdot 10^{-3}T$

$\Lambda = 610.1 \exp(-5409/RT)$

T	Λ	κ	ρ
820	21.2_0	0.506	4.077
840	23.3_7	0.556	4.060
860	25.5_5	0.605	4.042
880	27.7_2	0.653	4.024
900	29.8_9	0.701	4.007
920	32.0_7	0.749	3.989
940	34.2_5	0.797	3.971
960	36.4_3	0.843	3.953
980	38.6_1	0.890	3.936
1000	40.7_9	0.936	3.918
1020	42.9_7	0.982	3.900
1040	45.1_6	1.027	3.883
1060	47.3_5	1.072	3.865
1080	49.5_4	1.116	3.847
1100	51.7_3	1.160	3.830
1120	53.9_2	1.204	3.812
1140	56.1_2	1.247	3.794
1160	58.3_1	1.290	3.776
1180	60.5_1	1.332	3.759
1200	62.7_1	1.374	3.741
1220	64.9_2	1.416	3.723
1240	67.1_2	1.457	3.706
1260	69.3_3	1.497	3.688
1280	71.5_4	1.538	3.670

Density: 89, 96.

Conductance: 94.

TABLE 78

BARIUM IODIDE

Eq. Wt. 195.59 m.p. 740 °C.(1013 °K.)

$\varkappa = -2.1845 + 3.3755.10^{-3}T - 0.4666.10^{-6}T^2$

$\rho = 5.222 - 0.977.10^{-3}T$

$\Lambda = 831.2 \exp(-6367/RT)$

T	Λ	$\varkappa$	ρ
1000	33.3_8	0.72_4	4.245
1020	35.7_8	0.77_3	4.225
1040	38.2_0	0.82_1	4.206
1060	40.6_1	0.86_9	4.186
1080	43.0_3	0.91_7	4.167
1100	45.4_6	0.96_4	4.147
1120	47.8_9	1.01_1	4.128
1140	50.3_3	1.05_7	4.108
1160	52.7_7	1.10_3	4.089
1180	55.2_2	1.14_9	4.069
1200	57.6_8	1.19_4	4.050
1220	60.1_4	1.23_9	4.030
1240	62.6_0	1.28_4	4.011
1260	65.0_8	1.32_8	3.991
1280	67.5_5	1.37_2	3.971

Density: 91, 96.

Conductance: 94.

TABLE 79

ALUMINIUM (III) IODIDE

Eq. Wt. 135.91 m.p. 191°C.(464°K.)

$\kappa = -0.1721.10^{-4} + 0.8131.10^{-6}T + 0.6801.10^{-10}T^2$

$\rho = 4.38_3 - 2.50.10^{-3}T$

T	Λ	κ	ρ
470	0.69	1.6_3	3.20_8
480	1.01	2.3_6	3.18_3
490	1.33	3.1_0	3.15_8
500	1.67	3.8_6	3.13_3
510	2.02	4.6_3	3.10_8
520	2.38	5.4_1	3.08_3
530	2.75	6.2_0	3.05_8

Density: 35.

Conductance: 35.

TABLE 80

LANTHANUM (III) IODIDE

Eq. Wt. 173.23 m.p. 779°C.(1052°K.)

$\kappa = -0.9535 + 1.319 . 10^{-3} T$

T	κ
1070	0.457_8
1080	0.471_0
1090	0.484_2
1100	0.497_4
1110	0.510_6
1120	0.523_8
1130	0.537_0
1140	0.550_2

Conductance: 106.

TABLE 81

CERIUM (III) IODIDE

Eq. Wt. 173.63 m.p. 761 °C.(1034 °K.)

$\kappa = -0.8580 + 1.221 . 10^{-3} T$

T	κ
1070	0.448_5
1080	0.460_7
1090	0.472_9
1100	0.485_1
1110	0.497_3
1120	0.509_5
1130	0.521_7

Conductance: 106.

TABLE 82

PRASEODYMIUM (III) IODIDE

Eq. Wt. 173.89 m.p. 738°C.(1001°K.)

$\kappa = -0.7922 + 1.500.10^{-3}T$

T	κ
1040	0.767_8
1050	0.782_8
1060	0.797_8
1070	0.812_8
1080	0.827_8

Conductance: 106.

TABLE 83

NEODYMIUM (III) IODIDE

Eq. Wt. 175.01 m.p. 787°C.(1060°K.)

$\kappa = -0.7193 + 1.040.10^{-3}T$

T	κ
1080	0.403_9
1090	0.414_3
1100	0.424_7
1110	0.435_1

Conductance: 106.

TABLE 84

SILVER IODIDE

Eq. Wt. 234.80 m.p. 556°C.(829°K.)

$$\kappa = 4.674 \exp(-1146/RT)$$

$$\rho = 6.415 - 1.01.10^{-3}T$$

$$\Lambda = 239.9 \exp(-1475/RT)$$

$$\eta = 0.1481 \exp(5259/RT)$$

T	Λ	κ	ρ	η
830	98	2.33	5.577	
840	99	2.35	5.567	
850	100	2.37	5.557	
860	101	2.39	5.546	
870	102	2.41	5.536	
880	103	2.43	5.526	3.00
890	104	2.45	5.516	2.90
900	105	2.46	5.506	2.80
910	106	2.48	5.496	2.71
920	107	2.50	5.486	2.63
930	108	2.52	5.476	2.55
940	109	2.53	5.466	2.47
950	110	2.55	5.456	2.40
960	110.$_5$	2.56	5.445	2.33
970	111.$_5$	2.58	5.435	2.27
980	112	2.60	5.425	2.21
990	113	2.61	5.415	2.15
1000	114	2.63	5.405	2.09
1010	115	2.64	5.395	2.03
1020	116	2.66	5.385	1.98
1030	117	2.67	5.375	1.93
1040	117.$_5$	2.69	5.365	1.89
1050	118.$_5$	2.70	5.355	1.85
1060	119	2.71	5.344	1.80
1070	120	2.73	5.334	1.76
1080	121	2.74	5.324	1.72
1090				1.68
1100				1.64

Density: 22, 39.

Conductance: 10, 21, 23.

Viscosity: 24.

TABLE 85

ZINC IODIDE

Eq. Wt. 159.61 m.p. 446°C.(719°K.)

$\kappa = 0.6723 - 2.6858.10^{-3}T + 2.5446.10^{-6}T^2$

$\rho = 4.856 - 1.360.10^{-3}T$

$\Lambda = 17880 \exp(-12636/RT)$

T	Λ	κ	ρ
720	2.43	0.059	3.877
730	2.86	0.069	3.864
740	3.30	0.080	3.850
750	3.78	0.091	3.837
760	4.27	0.102	3.823
770	4.80	0.114	3.809
780	5.34	0.127	3.796
790	5.92	0.140	3.782
800	6.51	0.154	3.767
810	7.14	0.168	3.755
820	7.79	0.183	3.741
830	8.47	0.198	3.728
840	9.17	0.213	3.714
850	9.90	0.230	3.701
860	10.66	0.246	3.687
870	11.45	0.263	3.673

Density: 91, 96.

Conductance: 94.

TABLE 86

CADMIUM IODIDE

Eq. Wt. 183.13 m.p. 388°C.(661°K.)

$\kappa = -1.0841 + 1.7574 \cdot 10^{-3}T + 0.2449 \cdot 10^{-6}T^2$

$\rho = 5.133 - 1.117 \cdot 10^{-3}T$

$\Lambda = 1109.0 \exp(-6365/RT)$

T	Λ	κ	ρ
680	9.4	0.224	4.373
690	10.3	0.245	4.362
700	11.2	0.266	4.351
710	12.1	0.287	4.340
720	13.0_5	0.308	4.329
730	13.9_5	0.329	4.318
740	14.9	0.351	4.306
750	15.8_5	0.372	4.295
760	16.8	0.393	4.284
770	17.7_5	0.414	4.273
780	18.7	0.436	4.262
790	19.7	0.457	4.251
800	20.6_5	0.479	4.239
810	21.6_5	0.500	4.228
820	22.6_5	0.522	4.217
830	23.6_5	0.543	4.206
840	24.6_5	0.565	4.195
850	25.7	0.587	4.184
860	26.7	0.608	4.172
870	27.7_5	0.630	4.161
880	28.7_5	0.652	4.150
890	29.8	0.674	4.139
900	30.8_5	0.696	4.128
910	31.9_5	0.718	4.117

Density: 66.

Conductance: 66, 94.

TABLE 87

MERCURY (II) IODIDE

Eq. Wt. 227.23 m.p. 259°C.(532°K.)

$$\kappa = 0.2775 - 0.6394.10^{-3}T + 0.3554.10^{-6}T^{2}$$

$$\rho = 6.9435 - 3.2351.10^{-3}T$$

$$\Lambda = 0.018 \exp (+5428/RT)$$

$$\eta = 4.00.10^{-2} \exp (4531/RT)$$

T	Λ	κ	ρ	η
530	1.67	0.0384	5.2289	
540	1.57	0.0359	5.1965	
550	1.46_5	0.0333	5.1642	2.53
560	1.37	0.0309	5.1318	2.35
570	1.27	0.0285	5.0995	2.19
580	1.17_5	0.0262	5.0671	2.04
590	1.08	0.0240	5.0348	1.91
600	0.99	0.0218	5.0024	1.79
610	0.90	0.0197	4.9701	1.68
620	0.81_5	0.0177	4.9377	1.58
630	0.73	0.0157	4.9054	1.49

Density: 18, 78, 103.

Conductance: 29, 94, 103.

Viscosity: 103.

TABLE 88

GALLIUM (II) IODIDE

Eq. Wt. 161.78 m.p. 212°C.(485°K.)

$\kappa = -0.4546 + 1.149.10^{-3}T$

$\rho = 4.841 - 1.688.10^{-3}T$

$\Lambda = 771.8 \exp(-5121/RT)$

T	Λ	κ	ρ
430	$1._6$	0.04	4.115
440	$2._0$	0.05	4.098
450	$2._5$	0.06	4.081
460	$2._9$	0.07	4.064
470	$3._4$	0.08	4.048
480	$3._9$	0.10	4.031
490	$4._4$	0.11	4.014
500	$4._9$	0.12	3.997
510	$5._3$	0.13	3.980
520	$5._8$	0.14	3.963
530	$6._3$	0.15	3.946
540	$6._8$	0.17	3.929
550	$7._3$	0.18	3.913
560	$7._8$	0.19	3.896
570	$8._4$	0.20	3.879
580	$8._9$	0.21	3.862
590	$9._4$	0.22	3.845
600	$9._9$	0.23	3.828
610	$10._4$	0.25	3.811
620	$11._0$	0.26	3.794

Density: <u>105</u>.

Conductance: <u>105</u>.

TABLE 89

INDIUM (III) IODIDE

Eq. Wt. 165.17 m.p. 210°C.(483°K.)

$$\kappa = -0.2413 + 0.8600 \cdot 10^{-3}T - 0.5224 \cdot 10^{-6}T^2$$

$$\rho = 4.89 - 1.50 \cdot 10^{-3}T$$

$$\Lambda = 28.30 \exp(-2480/RT)$$

T	Λ	κ	ρ
490	2.1_5	0.054	4.15_5
500	2.3_0	0.058	4.14
510	2.4_4	0.061	4.12_5
520	2.5_8	0.064	4.11
530	2.7_1	0.067	4.09_5
540	2.8_4	0.070	4.08
550	2.9_7	0.073	4.06_5
560	3.0_9	0.076	4.05
570	3.2_1	0.079	4.03_5
580	3.3_3	0.081	4.02
590	3.4_5	0.084	4.00_5
600	3.5_6	0.086	3.99
610	3.6_6	0.088	3.97_5
620	3.7_7	0.090	3.96
630	3.8_7	0.092	3.94_5
640	3.9_6	0.094	3.93
650	4.0_6	0.096	3.91_5

Density: 34.

Conductance: 34.

TABLE 90

THALLIUM (I) IODIDE

Eq. Wt. 331.31 m.p. 440°C.(713°K.)

$$\kappa = -1.4257 + 3.4061.10^{-3}T - 0.9295.10^{-6}T^2$$

T	κ
710	0.524
720	0.545
730	0.565
740	0.586
750	0.606
760	0.626
770	0.646
780	0.666
790	0.685
800	0.704
810	0.723
820	0.742
830	0.761
840	0.780
850	0.798
860	0.816
870	0.834

Conductance: 21.

TABLE 91

LEAD (II) IODIDE

Eq. Wt. 230.53 m.p. 402°C.(675°K.)

$\kappa = -0.6501 + 1.0054 \cdot 10^{-3} T + 0.7888 \cdot 10^{-6} T^2$

T	κ
680	0.399
690	0.419
700	0.440
710	0.442
720	0.483
730	0.504
740	0.526
750	0.548
760	0.570
770	0.592
780	0.614
790	0.636
800	0.659
810	0.682
820	0.704
830	0.727
840	0.751
850	0.775
860	0.798
870	0.822

Conductance: 108.

TABLE 92

BISMUTH (III) IODIDE

Eq. Wt. 199.59 m.p. 408°C.(671°K.)

$$\kappa = -0.9306 + 3.0374.10^{-3}T - 1.8477.10^{-6}T^2$$

T	κ
690	0.286
700	0.290
710	0.295
720	0.298
730	0.302
740	0.305
750	0.308
760	0.311
770	0.313

Conductance: 104.

Carbonates

Li_2CO_3

Na_2CO_3

K_2CO_3

TABLE 93

LITHIUM CARBONATE

Eq. Wt. 36.94 m.p. 618°C. (891°K.)

κ = 3.378 exp (-3954/RT)

ρ = $2.2026 - 0.3729.10^{-3}T$

Λ = 754.5 exp (-4438/RT)

η = $-5259.12 + 14.8091T - 1.38581.10^{-2}T^2 + 4.31294.10^{-6}T^3$

T	Λ	κ	ρ	η
1010	82.88	4.097	1.8260	
1020	84.58	4.172	1.8222	
1030	86.31	4.249	1.8185	
1040	88.06	4.326	1.8148	
1050	89.83	4.404	1.8111	4.64
1060	91.63	4.483	1.8073	4.34
1070	93.46	4.563	1.8036	4.01
1080	95.31	4.644	1.7999	3.67
1090	97.19	4.726	1.7961	3.36
1100	99.09	4.808	1.7924	3.10
1110	101.02	4.892	1.7887	2.91
1120	102.98	4.976	1.7850	2.83

Density: 101.

Conductance: 101.

Viscosity: 107.

TABLE 94

SODIUM CARBONATE

Eq. Wt. 53.00 m.p. 858°C.(1131°K.)

$\kappa = 13.758 \exp(-3527/RT)$

$\rho = 2.4797 - 0.4487.10^{-3}T$

$\Lambda = 550.2 \exp(-4199/RT)$

$\eta = 1464.540 - 3.443219T + 2.709817.10^{-3}T^2 - 7.132598.10^{-7}T^3$

T	Λ	κ	ρ	η
1140	78.0_8	2.900	1.9682	
1150	79.3_3	2.939	1.9637	
1160	80.5_7	2.978	1.9592	3.41
1170	81.8_2	3.018	1.9547	3.08
1180	83.0_7	3.057	1.9502	2.78
1190	84.3_2	3.096	1.9457	2.53
1200	85.5_7	3.134	1.9413	2.30
1210	86.8_3	3.173	1.9368	2.10
1220	88.0_8	3.211	1.9323	1.93
1230	89.3_4	3.249	1.9278	1.78
1240	90.5_9	3.288	1.9233	1.64
1230	91.8_5	3.325	1.9188	
1260	93.1_1	3.363	1.9143	
1270	94.3_7	3.401	1.9099	
1280	95.6_3	3.438	1.9054	

Density: 3, 101.
Conductance: 4, 101.
Viscosity: 107.

TABLE 95

POTASSIUM CARBONATE

Eq. Wt. 69.1 m.p. 899°C.(1172°K.)

κ = 11.027 exp (-3941/RT)

ρ = 2.4141 - 0.4421.10^{-3}T

Λ = 344.6 exp (-4650/RT)

η = 1.16.10^{-5} exp (29490/RT)

T	Λ	κ	ρ	η
1180	74.9_8	2.053	1.8924	
1190	76.2_2	2.083	1.8880	3.03
1200	77.4_7	2.112	1.8836	2.73
1210	78.7_2	2.141	1.8792	2.46
1220	79.9_7	2.170	1.8747	2.23
1230	81.2_3	2.199	1.8703	2.02
1240	82.4_9	2.227	1.8659	1.83
1250	83.7_5	2.256	1.8615	1.66
1260	85.0_1	2.285	1.8571	
1270	86.2_8	2.313	1.8526	
1280	87.5_5	2.342	1.8482	

Density: 3, 101.

Conductance: 4, 101.

Viscosity: 107.

Nitrates

$LiNO_3$

$NaNO_3$

KNO_3

$RbNO_3$

$CsNO_3$

$AgNO_3$

$TlNO_3$

TABLE 96

LITHIUM NITRATE

Eq. Wt. 68.95 m.p. 252°C.(525°K.)

κ = $-2.8661 + 8.0532.10^{-3}T - 2.1070.10^{-6}T^2$

ρ = $2.068 - 0.546.10^{-3}T$

Λ = 835.6 exp (-3419/RT)

η Obtained from smooth curve through experimental points of Dantuma, since fit to both exponential and cubic equations is poor.

T	Λ	κ	ρ	η
550	$36._1$	0.93	1.768	5.87
560	$38._5$	0.98	1.762	5.49
570	$40._8$	1.04	1.757	5.14
580	$43._1$	1.10	1.751	4.81
590	$45._5$	1.15	1.746	4.50
600	$47._8$	1.21	1.740	4.21
610	$50._2$	1.26	1.735	3.92
620	$52._5$	1.32	1.729	3.66
630	$54._8$	1.37	1.724	3.41
640	$57._2$	1.42	1.719	3.16
650	$59._5$	1.48	1.713	2.95
660	$61._8$	1.53	1.708	2.74
670	$64._2$	1.58	1.702	2.54
680	$66._5$	1.64	1.697	2.34
690	$68._8$	1.69	1.691	2.15
700	$71._1$	1.74	1.686	

Density: <u>26</u>.

Conductance: 5, <u>26</u>.

Viscosity: 5, <u>38</u>.

TABLE 97

SODIUM NITRATE

Eq. Wt. 85.01 m.p. 307°C.(580°K.)

$\kappa = -1.5713 + 4.3835 \cdot 10^{-3}T$

$\rho = 2.320 - 0.715 \cdot 10^{-3}T$

$\Lambda = 705.6 \exp(-3215/RT)$

$\eta = 0.104 \exp(3886/RT)$

T	Λ	κ	ρ	η
580	43.3	0.971	1.905	
590	45.4_5	1.015	1.898	2.86
600	47.6	1.059	1.891	2.71
610	49.7_5	1.103	1.884	2.57
620	51.9_5	1.146	1.877	2.44
630	54.1	1.190	1.870	2.32
640	56.3_5	1.234	1.862	2.21
650	58.5_5	1.278	1.855	2.11
660	60.8	1.322	1.848	2.01
670	63.0_5	1.366	1.841	1.93
680	65.3_5	1.409	1.834	1.85
690	67.6_5	1.453	1.827	1.77
700	69.9_5	1.497	1.820	1.70
710				1.63
720				1.57
730				1.52

Density: 15, 26, <u>61</u>, <u>66</u>.

Conductance: <u>7</u>, 26, 27, <u>61</u>, <u>66</u>, 71, 75, 93.

Viscosity: 5, 7, 13, <u>38</u>.

TABLE 98

POTASSIUM NITRATE

Eq. Wt. 101.10 m.p. 334°C.(607°K.)

κ = $-1.9314 + 6.2321.10^{-3}T - 1.7924.10^{-6}T^2$

ρ = $2.315 - 0.729.10^{-3}T$

Λ = $657.4 \exp(-3577/RT)$

η = $8.585.10^{-2} \exp(4301/RT)$

T	Λ	κ	ρ	η
620	35.8_5	0.660	1.863	
630	37.6	0.691	1.856	2.60
640	39.4	0.721	1.848	2.47
650	41.2	0.751	1.841	2.34
660	43.0	0.780	1.834	2.23
670	44.8_5	0.810	1.827	2.12
680	46.6_5	0.840	1.819	2.02
690	48.5	0.869	1.812	1.93
700	50.3_5	0.898	1.805	1.85
710	52.2	0.928	1.797	1.77
720	54.0_5	0.957	1.790	1.69
730	55.9	0.986	1.783	1.63
740	57.8	1.015	1.776	1.56
750	59.6_5	1.043	1.768	1.50
760	61.5_5	1.072	1.761	1.45
770	63.4_5	1.101	1.754	1.39
780	65.3_5	1.129	1.746	1.34
790	67.3	1.157	1.739	1.30
800	69.2	1.186	1.732	1.25
810	71.1_5	1.214	1.725	1.21
820	73.1	1.242	1.717	
880	75.0_5	1.269	1.710	
890	77.0	1.297	1.703	
900	79.0	1.325	1.695	
910	81.0	1.352	1.688	
920	83.0	1.380	1.681	

Density: 15, 26, 38, <u>66</u>, <u>84</u>.

Conductance: <u>7</u>, 15, <u>20</u>, 26, 27, <u>66</u>, <u>84</u>, <u>92</u>.

Viscosity: 5, 8, 12, <u>38</u>, 57.

TABLE 99

RUBIDIUM NITRATE

Eq. Wt. 147.49 m.p. 310°C.(583°K.)

$$\kappa = -1.3769 + 3.8156 \cdot 10^{-3} T - 1.2658 \cdot 10^{-6} T^{2}$$

$$\rho = 3.049 - 0.972 \cdot 10^{-3} T$$

$$\Lambda = 515.7 \exp(-3496/RT)$$

T	Λ	κ	ρ
590	25.8	0.434	2.476
600	27.3	0.457	2.466
610	28.8	0.480	2.456
620	30.3	0.502	2.446
630	31.7	0.525	2.437
640	33.2	0.547	2.427
650	34.7	0.568	2.417
660	36.1	0.590	2.407
670	37.6	0.611	2.398
680	39.1	0.632	2.388
690	40.5	0.653	2.378
700	42.0	0.673	2.369
710	43.4	0.694	2.359
720	44.8	0.714	2.349
730	46.3	0.734	2.339
740	47.7	0.753	2.330
750	49.1	0.773	2.320
760	50.6	0.792	2.310

Density: 26.

Conductance: 26.

TABLE 100

CESIUM NITRATE

Eq. Wt. 194.92 m.p. 414°C.(687°K.)

κ = 5.790 exp (-3247/RT)

ρ = $3.6206 - 1.1660_5 . 10^{-3} T$

Λ = 551.1 exp (3685/RT)

T	Λ	κ	ρ
690	37.53	0.5422	2.8161
700	38.98	0.5608	2.8044
710	40.45	0.5796	2.7927
720	41.94	0.5984	2.7811
730	43.45	0.6173	2.7694
740	44.97	0.6363	2.7578
750	46.51	0.6553	2.7461
760	48.07	0.6743	2.7344

Density: 26, 83.

Conductance: 26, 83.

TABLE 101

SILVER NITRATE

Eq. Wt. 169.89 m.p. 212°C.(485°K.)

$\kappa = -1.9314 + 6.2321.10^{-3}T - 1.7924.10^{-6}T^2$

$\rho = 4.454 - 1.02.10^{-3}T$

$\Lambda = 587.9 \exp(-2898/RT)$

$\eta = 0.1153 \exp(3625/RT)$

T	Λ	κ	ρ	η
490	29.7_3	0.692	3.954	
500	31.7_3	0.737	3.944	
510	33.7_2	0.781	3.934	
520	35.7_1	0.825	3.924	
530	37.6_9	0.868	3.915	3.60
5[illegible]	39.6_6	0.911	3.903	3.38
550	41.6_3	0.954	3.893	3.18
560	43.6_0	0.996	3.883	3.00
570	45.5_6	1.038	3.873	2.83
580	47.5_2	1.080	3.862	2.68
590	49.4_7	1.122	3.852	2.54
600	51.4_1	1.163	3.842	

Density: 26, 36, <u>54</u>, <u>60</u>.

Conductance: 5, <u>61</u>, <u>78</u>.

Viscosity: 5, 65, <u>69</u>.

TABLE 102

THALLIUM NITRATE

Eq. Wt. 266.40 m.p. 210°C.(483 °K.)

κ = 10.64 exp (-3260/RT)

ρ = 5.745 - 1.75.10^{-3}T

Λ = 748.0 exp (-3514/RT)

η = 9.04.10^{-4} exp (3610/RT)

T	Λ	κ	ρ	η
490	20.4	0.374	4.887_5	3.68
500	21.9	0.400	4.870_0	3.42
510	23.4	0.426	4.852_5	3.19
520	25.0	0.454	4.835_0	2.98
530	26.6	0.481	4.817_5	
540	28.3	0.510	4.800_0	
550	30.0	0.539	4.782_5	
560	31.8	0.568	4.765_0	
570	33.6	0.598	4.747_5	
580	35.4	0.629	4.730_0	
590	37.3	0.660	4.712_5	
600	39.2	0.691	4.695_0	
610	41.2	0.723	4.677_5	
620	43.1	0.755	4.660_0	
630	45.2	0.787	4.642_5	
640	47.2	0.820	4.625_0	
650	49.3	0.853	4.607_5	
660	51.4	0.886	4.590_0	
670	53.6	0.919	4.572_5	
680	55.7	0.953	4.555_0	
690	57.9	0.987	4.537_5	
700	60.2	1.021	4.520_0	

Density: 25.

Conductance: 48, 110.

Viscosity: 110.

Oxides

V_2O_5

CrO_3

MoO_3

PbO

Sb_2O_3

Bi_2O_3

TeO_2

TABLE 103

VANADIUM PENTOXIDE

m.p. 690°C.(963°K.)

$$\kappa = -2.056 + 1.890 \cdot 10^{-3} T$$

T	κ
1140	0.09_9
1150	0.11_8
1160	0.13_6
1170	0.15_5
1180	0.17_4
1190	0.19_3
1200	0.21_2
1210	0.23_1
1220	0.25_0
1230	0.26_9
1240	0.28_8

Conductance: 68.

TABLE 104

CHROMIUM TRIOXIDE

m.p. 196°C.(469°K.)

$$\kappa = -0.1952 + 0.4032.10^{-3}T - 0.0391.10^{-6}T^2$$

T	κ
510	0.00026
520	0.00389
530	0.00751
540	0.01113

Conductance: 68.

TABLE 105

MOLYBDENUM TRIOXIDE

m.p. 795°C.(1068°K.)

$\kappa = 11.642 \exp(-5586/RT)$

T	κ
1070	0.841
1080	0.862
1090	0.883
1100	0.904
1110	0.925
1120	0.946
1130	0.967
1140	0.989
1150	1.010
1160	1.032
1170	1.053
1180	1.075

Conductance: 76.

TABLE 106

LEAD OXIDE

m.p. 888 °C. (1161 °K.)

$$\kappa = 1.750.10^5 \exp(-27629/RT)$$

T	κ
1170	1.2_1
1180	1.3_3
1190	1.4_7
1200	1.6_2
1210	1.7_9
1220	1.9_6
1230	2.1_6
1240	2.3_6
1250	2.5_8
1260	2.8_2

Conductance: <u>68</u>.

TABLE 107

ANTIMONY SESQUIOXIDE

m.p. 656°C.(929°K.)

$$\kappa = -1.086 + 1.062 \cdot 10^{-3} T$$

T	κ
1110	0.09_3
1120	0.10_3
1130	0.11_4
1140	0.12_5
1150	0.13_5
1160	0.14_6

Conductance: 68.

TABLE 108

BISMUTH SESQUIOXIDE

m.p. 820°C.(1093°K.)

$$\kappa = -11.668 + 10.764.10^{-3}T$$

T	κ
1100	0.1_7
1110	0.2_8
1120	0.3_9
1130	0.5_0
1140	0.6_0
1150	0.7_1
1160	0.8_2
1170	0.9_3
1180	1.0_3
1190	1.1_4
1200	1.2_5
1210	1.3_6

Conductance: 68.

TABLE 109

TELLURIUM DIOXIDE

m.p. 450°C.(723°K.)

$\varkappa = 1.454.10^2 \exp(-9656/RT)$

T	$\varkappa$
1020	1.24
1030	1.30
1040	1.36
1050	1.42
1060	1.48
1070	1.55
1080	1.62
1090	1.68
1100	1.75
1110	1.82
1120	1.90
1130	1.97
1140	2.05
1150	2.12
1160	2.20
1170	2.28
1180	2.37
1190	2.45
1200	2.53
1210	2.62
1220	2.71
1230	2.80

Conductance: 68.

Sulphates

Li_2SO_4

Na_2SO_4

K2SO_4

Rb_2SO_4

Cs_2SO_4

TABLE 110

LITHIUM SULPHATE

Eq. Wt. 54.97 m.p. 859°C.(1132°K.)

$$\rho = 2.464 - 0.000407T$$

T	ρ
1150	1.996
1200	1.976
1250	1.955
1300	1.935
1350	1.915
1400	1.894
1450	1.874

Density: 25.

TABLE 111

SODIUM SULPHATE

Eq. Wt. 71.03 m.p. 884°C.(1157°K.)

κ = $-0.960 + 0.00272T$

ρ = $2.628 - 0.000483T$

Λ = $477.6 \exp(-4266/RT)$

T	Λ	κ	ρ
1200	79.91	2.304	2.048
1250	85.63	2.440	2.024
1300	91.49	2.576	2.000
1350	97.49	2.712	1.976

Density: 25.

Conductance: 4.

TABLE 112

POTASSIUM SULPHATE

Eq. Wt. 137.13 m.p. 1076°C.(1349°K.)

κ = -0.906 + 0.002T

ρ = 2.620 - 0.0005449T

Λ = 904.9 exp (-5194/RT)

T	Λ	κ	ρ
1350	130.6	1.794	1.884
1400	139.9	1.894	1.857
1450			1.830
1500			1.803
1550			1.775
1600			1.748
1650			1.721
1700			1.694
1750			1.666
1800			1.639
1850			1.612
1900			1.585

Density: <u>25</u>.

Conductance: <u>4</u>.

TABLE 113

RUBIDIUM SULPHATE

Eq. Wt. 133.52 m.p. 1074°C.(1347°K.)

$$\rho = 3.442 - 0.000665T$$

T	ρ
1350	2.544
1400	2.511
1450	2.478
1500	2.445
1550	2.411
1600	2.378
1650	2.345
1700	2.312
1750	2.278
1800	2.245

Density: 25.

TABLE 114

CESIUM SULPHATE

Eq. Wt. 180.95 m.p 1019°C.(1292°K.)

$\rho = 3.116 + 0.000586T - 0.000000494T^2$

T	ρ
1300	3.043
1350	3.007
1400	2.968
1450	2.927
1500	2.884
1550	2.837
1600	2.789
1650	2.738
1700	2.685
1750	2.629

Density: 25.

Miscellaneous

Na_2MoO_4

Na_2WO_4

NaCNS

K_2MoO_4

K_2WO_4

$K_2Cr_2O_7$

KCNS

UO_2Cl_2

$NaNO_2$

KNO_2

NaOH

KOH

TABLE 115

SODIUM MOLYBDATE

Eq. Wt. 102.97 m.p. 687 °C. (960 °K.)

$$\kappa = -3.1705 + 5.2419 \cdot 10^{-3} T - 0.8970 \cdot 10^{-6} T^2$$

$$\rho = 3.407 - 0.629 \cdot 10^{-3} T$$

$$\Lambda = 779.9 \exp(-5713/RT)$$

T	Λ	κ	ρ
1020	46.3	1.243	2.765
1030	47.7	1.277	2.759
1040	49.0	1.311	2.753
1050	50.4	1.345	2.747
1060	51.8	1.378	2.740
1070	53.2	1.411	2.734
1080	54.5	1.444	2.728
1090	55.9	1.477	2.721
1100	57.3	1.510	2.715
1110	58.6	1.543	2.709
1120	60.0	1.575	2.703
1130	61.4	1.607	2.696
1140	62.8	1.640	2.690
1150	64.1	1.671	2.684
1160	65.5	1.703	2.677
1170	66.9	1.735	2.671
1180	68.2	1.767	2.665
1190	69.6	1.797	2.658
1200	71.0	1.828	2.652
1210	72.3	1.859	2.646
1220	73.7	1.890	2.640
1230	75.1	1.920	2.633

Density: 26.

Conductance: 26, 76.

TABLE 116

SODIUM TUNGSTATE

Eq. Wt 146.96 m.p. 698°C.(971°K.)

κ = 7.541 exp (-3931/RT)

ρ = 4.629 - 0.797.10^{-3}T

Λ = 381.7 exp (-4491/RT)

T	Λ	κ	ρ
1050	44.4	1.14_5	3.792
1060	45.3	1.16_5	3.784
1070	46.2	1.18_5	3.776
1080	47.1	1.20_5	3.768
1090	48.0	1.23	3.760
1100	48.9	1.25	3.752
1110	49.8	1.27	3.744
1120	50.7	1.29	3.736
1130	51.6	1.31	3.728
1140	52.5	1.33	3.720
1150	53.4	1.35	3.712
1160	54.4	1.37	3.704
1170	55.3	1.39	3.697
1180	56.2	1.41	3.689
1190	57.1	1.43	3.681
1200	58.0	1.45	3.673
1210	59.0	1.47	3.665
1220	59.9	1.49	3.657
1230	60.8	1.51	3.649
1240	61.7	1.53	3.641

Density: 26.

Conductance: 26.

TABLE 117

SODIUM THIOCYANATE

Eq. Wt. 81.08 m.p. 310°C.(583°K.)

$\kappa = 43.0 \exp(-4740/RT)$

$\eta = 49.35.10^{-3} \exp(4636/RT)$

T	κ	η
590	0.754	2.57
600	0.807	2.41
610	0.861	2.26
620	0.917	2.13
630	0.974	2.00
640	1.035	
650	1.096	

Conductance: 112.

Viscosity: 112.

TABLE 118

POTASSIUM MOLYBDATE

Eq. Wt. 119.08 m.p. 926°C.(1199°K.)

$\rho = 2.888 - 2.83.10^{-4}T - 1.28.10^{-7}T^2$

T	ρ
1250	2.334
1300	2.304
1350	2.273
1400	2.241
1450	2.209
1500	2.176
1550	2.142
1600	2.108
1650	2.073
1700	2.037
1750	2.001

Density: 25.

TABLE 119

POTASSIUM TUNGSTATE

Eq. Wt. 326.14 m.p. 930 °C. (1203 °K.)

$$\rho = 4.419 - 1.233.10^{-3}T + 1.62.10^{-7}T^2$$

T	ρ
1250	3.131
1300	3.090
1350	3.050
1400	3.010
1450	2.972
1500	2.934
1550	2.897
1600	2.861
1650	2.826
1700	2.791
1750	2.757

Density: 25.

TABLE 120

POTASSIUM DICHROMATE

Eq. Wt. 147.11 m.p. 398°C.(671°K.)

$\kappa = 73.0 \exp(-7800/RT)$

$\rho = 2.753 - 0.695.10^{-3}T$

$\Lambda = 604.2 \exp(-8141/RT)$

$\eta = 10.16.10^{-3} \exp(6533/RT)$

T	Λ	κ	ρ	η
690	$16._{0}$	0.24_{7}	2.273	1.19
700	$17._{4}$	0.26_{8}	2.267	1.12
710	$18._{9}$	0.29_{0}	2.260	1.06
720	$20._{4}$	0.31_{3}	2.253	1.00
730	$22._{1}$	0.33_{7}	2.246	0.94
740	$23._{8}$	0.36_{3}	2.239	0.88
750	$25._{7}$	0.38_{9}	2.232	0.82
760	$27._{6}$	0.41_{7}	2.225	0.77
770	$29._{6}$	0.44_{6}	2.218	0.71
780	$31._{7}$	0.47_{6}	2.211	0.66
790	$33._{9}$	0.50_{7}	2.204	
800	$36._{1}$	0.54_{0}	2.197	

Density: 25, 110.

Conductance: 7, 110.

Viscosity: 8, 110.

TABLE 121

POTASSIUM THIOCYANATE

Eq. Wt. 97.18 m.p. 175°C.(448°K.)

$\kappa = 100 \exp(-5850/RT)$

$\rho = 1.9581 - 0.800.10^{-3}T$

$\Lambda = 786.1 \exp(-6082/RT)$

$\eta = 8.580.10^{-3} \exp(6454/RT)$

T	Λ	κ	ρ	η
450	8.8	0.144	1.5981	1.17
460	10.2	0.166	1.5901	1.00
470	11.7	0.190	1.5821	0.86
480	13.4	0.217	1.5741	0.75
490	15.3	0.246	1.5661	0.65
500	17.3	0.277	1.5581	0.57
510	19.5	0.311	1.5501	0.50
520				0.44

Density: 110.

Conductance: 112.

Viscosity: 112.

TABLE 122

URANYL CHLORIDE

Eq. Wt. 170.49 m.p. 578°C.(841°K.)

$\varkappa = -0.273 + 0.371.10^{-3}T$

T	$\varkappa$
860	0.046
870	0.050
880	0.053
890	0.057
900	0.061
910	0.065
920	0.068
930	0.072
940	0.076
950	0.079
960	0.083

Conductance: 64.

TABLE 123

SODIUM NITRITE

Eq. Wt. 69.01 m.p. 284°C.(557°K.)

$\kappa = 13.2 \exp(-2600/RT)$

$\rho = 2.226 - 0.746.10^{-3}T$

$\Lambda = 685.7 \exp(-2949/RT)$

$\eta = 8.56.10^{-2} \exp(4000/RT)$

T	Λ	κ	ρ	η
560				3.12
570	50.9	1.32_9	1.801	2.93
580	53.2	1.38_3	1.793	2.75
590	55.5	1.43_7	1.786	
600	57.9	1.49_1	1.778	
610	60.2	1.54_5	1.771	
620	62.6	1.60_0	1.763	
630	65.0	1.65_4	1.756	
640	67.4	1.70_9	1.749	
650	69.9	1.76_3	1.741	
660	72.4	1.81_8	1.734	
670	74.9	1.87_2	1.726	
680	77.4	1.92_7	1.719	
690	79.9	1.98_1	1.711	
700	82.5	2.03_6	1.704	
710	85.0	2.09_0	1.696	
720	87.6	2.14_4	1.689	

Density: 66, 110.

Conductance: 66.

Viscosity: 110.

TABLE 124

POTASSIUM NITRITE

Eq. Wt. 105.11 m.p. 417°C.(690°K.)

$$\eta = 1.337.10^{-1} \exp (4230/RT)$$

T	η
700	2.80
710	2.68
720	2.57

Viscosity: 110.

TABLE 125

SODIUM HYDROXIDE

Eq. Wt. 40.01   m.p. 318°C.(591°K.)

κ = $-3.23 + 90.10^{-3}T$

ρ = $2.068 - 0.4784.10^{-3}T$

Λ = $685.7 \exp(-2949/RT)$

T	Λ	κ	ρ
600	48.7	2.17	1.781
610	50.9	2.26	1.776
620	53.1	2.35	1.771
630	55.3	2.44	1.767
640	57.5	2.53	1.762
650	59.7	2.62	1.757
660	61.9	2.71	1.752
670	64.1	2.80	1.747
680	66.4	2.89	1.743
690	68.6	2.98	1.738
700	70.9	3.07	1.733
710	73.2	3.16	1.728
720	75.4	3.25	1.724
730	77.7	3.34	1.719

Density: 37.

Conductance: 37.

TABLE 126

POTASSIUM HYDROXIDE

Eq. Wt. 56.10 m.p. 360°C.(633°K.)

κ = $-1.38 + 5.80.10^{-3}T$

ρ = $2.013 - 0.4396.10^{-3}T$

Λ = $520.2 \exp(-2467/RT)$

T	Λ	κ	ρ
640	$75._5$	2.33	1.732
650	$77._6$	2.39	1.727
660	$79._7$	2.45	1.723
670	$81._8$	2.51	1.718
680	$83._9$	2.56	1.714
690	$86._0$	2.62	1.710
700	$88._2$	2.68	1.705
710	$90._3$	2.74	1.701
720	$92._5$	2.80	1.696
730	$94._6$	2.85	1.692
740	$96._8$	2.91	1.688
750	$99._0$	2.97	1.683
760	$101._2$	3.03	1.679
770	$103._4$	3.09	1.675
780	$105._6$	3.14	1.670
790	$107._8$	3.20	1.666
800	$110._1$	3.26	1.661
810	$112._3$	3.32	1.657
820	$114._6$	3.38	1.653
830	$116._9$	3.43	1.648
840	$119._2$	3.49	1.644
850	$121._5$	3.55	1.639
860	$123._8$	3.61	1.635
870	$126._1$	3.67	1.631

Density: 37.

Conductance: 37.

Single-Salt Melts

Equations for Temperature Dependence of Density, Electrical Conductance, and Viscosity

Density: $\rho = a - bT$

Specific Conductance: $\kappa = a + bT$

$$\kappa = A_{\kappa} e^{-E_{\kappa}/RT}$$

Equivalent Conductance: $\Lambda = A_{\Lambda} e^{-E_{\Lambda}/RT}$

Viscosity: $\eta = A_{\eta} e^{E_{\eta}/RT}$

$$\eta = \frac{B}{(v-b)}$$

Units (cont'd from p. 4)

For Tables 127-130 the units of ρ, Λ, κ and η are as in Tables 1-126. The units for the parameters in the above equations are:

A_{κ}	:	$ohm^{-1}\ cm^{-1}$
E_{κ}	:	$Kcal\ mole^{-1}$
A_{Λ}	:	$ohm^{-1}\ cm^{2}\ equiv^{-1}$
E_{Λ}	:	$cal\ mole^{-1}$
A_{η}	:	cp
E_{η}	:	$cal\ mole^{-1}$

TABLE 127

DENSITY-SINGLE SALT MELTS

Salt	m.p.(°K.)	a	b x 10^3	Temperature Range (°K.)	References
Aluminum Triiodide	464	4.383	2.50	464-543	35
Barium Bromide	1150	5.035	0.924	1140-1340	66,91,96
Barium Chloride	1235	4.0152	0.6813	1240-1360	11.63,70,81.83
Barium Fluoride	1593	5.775	0.999	1600-2000	95
Barium Iodide	1013	5.222	0.977	1000-1280	91.96
Beryllium (II) Chloride	713	2.276	1.1	723-743	26
Bismuth Tribromide	491	5.958	2.6	523-715	25
Bismuth Trichloride	503	5.073	2.30	503-828	25,32
Cadmium Bromide	840	4.983	1.08	853-993	54
Cadmium Chloride	841	4.078	0.82	840-1080	15,54,66
Cadmium Iodide	661	5.133	1.117	680-920	66
Calcium Bromide	1003	3.618	0.500	1020 - 1280	89,96
Calcium Chloride	1046	2.5261	0.4225	1060-1230	11,17,63,83
Calcium Fluoride	1691	3.179	0.391	1650 - 2300	95
Calcium Iodide	1057	4.233	0.751	1060 - 1290	89,96
Cerium (III) Chloride	1095	4.248	0.920	1123-1223	99
Cerium (III) Fluoride	1733	6.253	0.936	1700 - 2200	95
Cesium Bromide	909	4.2449	1.2234	910-1140	25,74,82
Cedium Chloride	919	3.7692	1.0650	940-1180	25,59,80,81,82
Cesium Fluoride	976	4.8985	1.2806	980-1190	25,83
Cesium Iodide	899	4.2410	1.1834	920-1130	25,74,82
Cesium Nitrate	687	3.6206	1.1660_5	690-760	26,83
Cesium Sulphate	1292	3.116	0.586	1300 - 1750	25

TABLE 127

DENSITY-SINGLE SALT MELTS (cont'd)

Salt	m.p. (°K.)	a	b x 10^3	Temperature Range (°K.)	References
Copper (I) Chloride	695	4.301	0.79	709-860	36
Gallium (II) Iodide	485	4.841	1.688	454-538	105
Indium (III) Bromide	709	4.164	1.50	709-813	34
Indium (I) Chloride	498	4.437	1.40	498-624	34
Indium (II) Chloride	508	3.863	1.60	508-780	34
Indium (III) Chloride	859	3.944	2.10	859-967	34
Indium (III) Iodide	483	4.89	1.50	483-645	34
Lanthanum (III) Bromide	1056	5.0351	0.096	1069-1185	83
Lanthanum (III) Chloride	1145	4.0895	0.7774	1146-1246	36,83
Lanthanum (III) Fluoride	—	5.793	0.682	1750-2450	95
Lead (II) Bromide	646	5.432	1.45	650-770	15,54
Lead (II) Chloride	774	4.933	1.50	780-980	15,40,54
Lithium Bromide	820	3.0658	0.6520	828-1023	3,81,82
Lithium Carbonate	891	2.2026	0.3729	1010-1120	101
Lithium Chloride	883	1.8842	0.4328	900-1050	3,25,55,62,66,79,8
Lithium Fluoride	1120	2.3768	0.4902	1149-1300	25,81,83
Lithium Iodide	742	3.7902	0.9176	748-943	82
Lithium Nitrate	525	2.068	0.546	540-700	26
Lithium Sulphate	1132	2.464	0.407	1133-1487	25
Magnesium Bromide	987	3.087	0.478	1060-1240	89,96
Magnesium Chloride	981	1.976	0.302	1000-1240	36,63,89,96
Magnesium Fluoride	1536	3.235	0.524	1650-2100	95
Magnesium Iodide	923	3.642	0.651	920-1180	89,96
Mercury (II) Bromide	511	6.7715	3.2331	510-560	18,103

TABLE 127

DENSITY-SINGLE SALT MELTS (cont'd)

Salt	m.p.(°K.)	a	b x 10³	Temperature Range (°K.)	References
ercury (I) Chloride	798	6.22	4.0	799-850	36
ercury (II) Chloride	549	5.9391	2.8624	550-580	18,103
ercury (II) Iodide	532	6.9435	3.2351	530-630	18,78,103
eodymium (III) Bromide	957	4.9750	0.7779	963-1146	83
otassium Bromide	1007	2.9583	0.8253	1020-1200	3,15,26,66,81,82
otassium Carbonate	1172	2.4141	0.4421	1180-1280	101
otassium Chloride	1049	2.1359	0.5831	1050-1220	3,11,26,62,66,70,79,80,31
otassium Dichromate	671	2.753	0.695	693-808	25,110
otassium Fluoride	1131	2.6464	0.6515	1142-1313	26,81,83
otassium Hydroxide	633	2.013	0.4396	673-873	37
otassium Iodide	954	3.3594	0.9557	955-1177	26,66,79,81
otassium Molybdate	1199	2.888	0.283	1250-1750	25
otassium Nitrate	607	2.315	0.729	620-880	15,26,38,66,84
otassium Sulphate	1349	2.620	0.5449	1344-1929	25
otassium Thiocyanate	450	1.9583	0.80	447-460	110
otassium Tungstate	1203	4.419	1.233	1250-1750	25
Rubidium Bromide	955	3.7390	1.0718	973-1183	25,82
Rubidium Chloride	988	3.1210	0.8832	995-1198	25,35,36,82
Rubidium Iodide	920	3.9499	1.1435	928-1178	25,82
Rubidium Nitrate	583	3.049	0.972	593-773	26
Rubidium Sulphate	1347	3.442	0.665	1359-1818	25
Scandium (III) Chloride	1212	ρ = 1.67		at 1213	36
Silver Bromide	707	6.307	1.035	720-940	3,22,54,81

TABLE 127

DENSITY-SINGLE SALT MELTS (cont'd)

Salt	m.p.(°K.)	a	b x 10^3	Temperature Range (°K.)	References
Silver Chloride	728	5.489	0.849	740-910	22,54,60,81
Silver Iodide	829	6.415	1.01	820-1080	22,39
Silver Nitrate	485	4.454	1.02	490-600	26,36,54,60
Sodium Bromide	1020	3.1748	0.8169	1028-1218	3,25,81,82
Sodium Carbonate	1131	2.4797	0.4487	1140-1280	101
Sodium Chloride	1074	2.1393	0.5430	1076-1303	3,10,25,55,62,66,79,80,81,96
Sodium Fluoride	1268	2.655	0.560	1270-1330	25,31
Sodium Hydroxide	591	2.068	0.4784	593-723	37
Sodium Iodide	933	3.6274	0.9491	943-1188	25,66,82
Sodium Molybdate	960	3.407	0.629	1020-1240	26
Sodium Nitrate	580	2.320	0.715	490-600	15,26,61,66
Sodium Nitrite	557	2.226	0.746	570-723	66,110
Sodium Sulphate	1157	2.628	0.483	1173-1350	25
Sodium Tungstate	971	4.629	0.797	1050-1750	26
Strontium Bromide	916	4.390	0.745	940 - 1180	89,96
Strontium Chloride	1146	3.3896	0.5781	1167-1310	11,81,83
Strontium Fluoride	1673	4.784	0.751	1750 - 2260	95
Strontium Iodide	788	4.803	0.885	820 - 1280	89,96
Thallium (I) Chloride	703	6.893	1.80	710-880	36
Thallium (I) Nitrate	483	5.745	1.75	483-703	25
Tin (II) Chloride	519	4.016	1.253	520-680	25,36
Yttrium (III) Chloride	953	3.007	0.50	980-1160	36
Zinc Bromide	667	4.113	0.959	670 - 900	43,89,96
Zinc Chloride	591	2.690	0.512	723-910	36,40,56,87,98
Zinc Iodide	719	4.855	1.360	720 - 870	91,96

TABLE 128

Specific Conductance of Single Salt Melts.

Salt	LINEAR a	LINEAR b.10³	LINEAR s	EXPONENTIAL AK	EXPONENTIAL EK	EXPONENTIAL s	RANGE °K	REFERENCES
Aluminum Triiodide	$-0.340 \cdot 10^{-4}$	$0.757 \cdot 10^{-4}$	$0.12 \cdot 10^{-6}$	-2.054	10.449	0.1365	461-543	35
Antimony (III) Oxide	-1.086	1.062	0.0038	$6.799 \cdot 10^{3}$	24.716	0.0529	1101-1161	68
Barium Bromide	-1.775	2.632	0.0047	13.539	5.441	0.0039	1126-1338	94
Barium Chloride	-2.361	3.562	0.0028	17.479	5.274	0.0012	1239-1359	4,63,83,85,94
Barium Iodide	-1.593	2.322	0.0047	13.767	5.831	0.0088	991-1292	94
Beryllium Chloride	-0.1855	0.2607	0.0001	$5.712 \cdot 10^{12}$	50.469	0.0012	720-750	32
Bismuth (III) Bromide	0.299	-0.0115	0.0646	3.296	1.826	0.2344	588-973	104
Bismuth (III) Chloride	-0.317	1.401	0.0030	$1.091 \cdot 10^{4}$	1.880	0.0058	500-623	25,32
Bismuth (III) Iodide	0.0264	0.375	0.0021	0.753	1.332	0.0059	686-775	104
Bismuth (III) Oxide	-11.668	10.764	0.0817	$2.654 \cdot 10^{7}$	40.138	0.0937	1102-1208	68
Cadmium Bromide	-0.584	1.959	0.0045	5.488	2.749	0.0021	849-1055	94
Cadmium Chloride	-0.1702	0.0024	0.0095	1.849	2.050	0.0021	845-1082	19,21,27,33,51,66,94
Cadmium Iodide	-1.234	2.142	0.0024	23.613	6.240	0.0286	675-913	66,94
Calcium Bromide	-1.723	3.071	0.0036	12.820	4.475	0.0022	1014-1291	94
Calcium Chloride	-2.634	4.427	0.0055	19.628	4.749	0.0024	1046-1292	2,4,11,35,42,50,71, 83,85,94
Calcium Iodide	-0.992	2.025	0.0113	2.060	4.042	0.0079	1057-1286	94
Cerium (III) Chloride	-1.426	2.125	0.0006	11.179	5.460	0.0011	1123-1223	99
Cerium (III) Iodide	-0.858	1.221	0.0003	7.746	6.055	0.0608	1070-1130	106

TABLE 128

SPECIFIC CONDUCTANCE OF SINGLE-SALT MELTS (cont'd)

	LINEAR			EXPONENTIAL			RANGE °K	REFERENCES
Salt	a	$b.10^3$	s	A	E	s		
Cesium Bromide	-1.412	2.435	0.0054	11.185	4.757	0.0068	917-1131	82
Cesium Chloride	-1.546	2.896	0.0092	11.698	4.293	0.0064	926-1170	33,82
Cesium Fluoride	-0.3567	3.7952	0.0297	11.505	2.407	0.0062	1000-1190	83
Cesium Iodide	-1.110	1.962	0.0060	2.147	4.588	0.0077	906-1137	82
Cesium Nitrate	0.5297	0.0150	0.0856	5.730	3.247	0.0003	690-760	26,83
Chromium (VI) Oxide	-0.1766	0.3470	0.0003	36.807	43.998	0.2381	513-535	68
Copper (I) Bromide	0.265	2.92	0.0045	6.342	1.416	0.0021	764-823	41
Copper (I) Chloride	1.5719	2.4103	0.0191	1.769	0.819	0.0059	695-850	21,33,85
Copper (II) Fluoride	0.93	1.0	—	—	—	—	1270-1370	86
Gallium (II) Iodide	-0.4546	1.149	0.0050	1756	5.060	0.0930	423-623	105
Indium (III) Bromide	0.242	-0.103	0.0009	0.101	0.727	0.0067	709-813	34
Indium (I) Chloride	-2.376	6.457	0.0146	24.148	3.314	0.0192	498-624	34
Indium (II) Chloride	-0.679	1.818	0.0141	6.405	3.314	0.0416	508-780	34
Indium (III) Chloride	1.184	-0.883	0.0024	0.045	3.862	0.0124	859-967	34
Indium (III) Iodide	-7.798	0.273	0.0020	0.612	-2.337	0.0297	483-645	34
Lanthanum (III) Bromide	-3.8144	4.3158	0.0091	106.15	10.353	0.0023	1070-1190	83
Lanthanum (III) Chloride	-1.6841	2.8015	0.0093	12.623	4.812	0.0055	1150-1260	35,83

TABLE 128

SPECIFIC CONDUCTANCE OF SINGLE-SALT MELTS

Salt	LINEAR a	LINEAR $b.10^3$	LINEAR s	EXPONENTIAL A_K	EXPONENTIAL E_K	EXPONENTIAL s	RANGE °K	REFERENCES
Lanthanum (III) Iodide	-0.9535	1.3190	0.0003	9.118	6.359	0.0008	1070 - 1140	106
Lead (II) Bromide	-1.603	3.388	0.0037	16.726	4.290	0.0083	655-765	7,72
Lead (II) Chloride	-2.258	4.792	0.0191	18.093	3.883	0.0129	771-881	7,51,72,85,96
Lead (II) Fluoride	0.7	4.0	—	—	—	—	1150 - 1250	86
Lead (II) Iodide	-1.194	2.227	0.0044	1.100	4.478	0.0064	676 - 873	108
Lead (II) Oxide	-18.244	16.599	0.0800	$1.7502.10^5$	27.629	0.0584	1164-1260	68
Lithium Bromide	0.4518	5.1179	0.0077	12.98	1.666	0.0009	831-1022	82
Lithium Carbonate	-3.938	7.949	0.0084	3.378	3.954	0.0019	1018-1118	101
Lithium Chloride	1.5338	0.0048	0.0122	2.580	1.469	0.0015	896-1056	33,42,44,45,55,62, 66,79,85
Lithium Fluoride	0.5936	0.3453	0.0012	1.529	0.991	0.0004	1120-1300	42,83,86,88
Lithium Iodide	1.673	2.657	0.0386	6.914	0.949	0.0080	742-942	82
Lithium Nitrate	- 2.039	5.401	0.0147	13.97	3.725	0.0829	595 - 714	5, 26
Magnesium Bromide	-1.128	1.850	0.0045	2.149	4.915	0.0042	987-1245	94
Magnesium Chloride	-0.9679	2.004	0.0034	7.374	3.899	0.0034	987-1252	35,63,94
Magnesium Iodide	-1.227	1.772	0.0029	13.070	6.333	0.0047	910-1176	94
Manganese (II) Chloride	-1.591	2.700	0.0041	11.80	4.694	0.0026	923 - 1223	85
Manganese (II) Fluoride	0.0	4.0	—	—	—	—	1200 - 1300	86

TABLE 128

SPECIFIC CONDUCTANCE OF SINGLE -SALT MELTS (cont'd)

Salt	LINEAR a	LINEAR $b.10^3$	LINEAR s	EXPONENTIAL A*	EXPONENTIAL E*	EXPONENTIAL s	RANGE °K	REFERENCES
Mercury (II) Bromide	$-0.7966.10^{-3}$	$0.1818.10^{-2}$	$0.13.10^{-5}$	0.280	5.399	0.0135	510-560	94,103
Mercury (I) Chloride	-0.653	2.062	0.0061	5.255	2.644	0.0059	802-819	35
Mercury (II) Chloride	$-0.1626.10^{-3}$	$0.3521.10^{-3}$	$0.23.10^{-6}$	0.866	6.147	0.0065	550-580	35,94,103
Mercury (II) Iodide	-0.0851	-0.1046	$0.72.10^{-4}$	0.146	-3.241	0.0032	530-630	29,94,103
Molybdenum (VI) Oxide	-1.445	2.135	0.0028	11.642	5.586	0.0022	1070-1187	76
Neodymium (III) Bromide	-2.1487	2.5020	0.0167	106.67	11.351	0.0075	960-1160	83
Neodymium (III) Chloride	-2.018	2.527	0.0024	28.58	7.934	0.0051	1048-1173	32
Neodymium (III) Iodide	-0.7193	1.040	0.0003	6.336	5.908	0.0008	1080-1110	106
Potassium Bromide	-0.369	1.993	0.0205	6.256	2.691	0.0096	981-1229	10,26,33,66,82,100
Potassium Carbonate	-1.339	2.876	0.0020	11.027	3.941	0.0008	1184-1279	101
Potassium Chloride	9.210	2.007	0.0214	6.571	2.295	0.0058	1052-1373	2,4,10,26,27,42,44,49, 50,55,62,63,66,70,79, 80,81,95
Potassium Dichromate	–	–	–	73	7.8	–	670-800	7,110
Potassium Fluoride	2.1185	2.0190	0.0175	7.969	1.341	0.0031	1160-1320	26,31,42,73,83,86,88
Potassium Hydroxide	-1.38	5.80	–	–	–	–	640-870	37
Potassium Iodide	-0.464	1.831	0.0239	5.698	2.839	0.0151	959-1184	10,26,33,66,79
Potassium Nitrate	-1.1133	2.8706	0.0050	8.520	3.137	0.0078	620-880	7,15,20,26,27,66,84,92

TABLE 128

SPECIFIC CONDUCTANCE OF SINGLE-SALT MELTS (cont'd)

Salt	LINEAR a	LINEAR b.10³	LINEAR s	EXPONENTIAL A	EXPONENTIAL E	EXPONENTIAL s	RANGE °K	REFERENCES
Potassium Sulphate	-0.906	—	—	—	—	—	1350-1400	4
Potassium Thiocyanate	—	—	—	100	5.85	—	450-510	112
Praseodymium (III) Chloride	-2.624	3.134	0.0044	36.17	8.258	0.0031	1097-1238	32
Praseodymium (III) Iodide	-0.7922	1.150	0.0003	7.424	6.017	0.0007	1040-1080	106
Rubidium Bromide	-0.671	1.878	0.0192	6.174	3.247	0.0131	1039-1176	82
Rubidium Chloride	-1.015	2.545	0.0084	8.621	3.440	0.0039	1003-1197	33,82
Rubidium Iodide	-0.593	1.592	0.0089	5.082	3.235	0.0069	929-1158	82
Rubidium Nitrate	-0.798	2.098	0.0037	6.302	3.117	0.0082	592-766	26
Scandium (III) Chloride	-2.890	2.796	—	2.309	3.162	—	1213-1273	30
Silver Bromide	1.7527	1.6491	0.0239	5.183	0.831	0.0016	700-1120	1,10,21,23,72,100
Silver Chloride	2.0748	2.4900	0.0333	7.368	0.947	0.0024	740-1100	1,10,21,23,60,72,100
Silver Fluoride	-5.2	12.0	—	—	—	—	800-900	86
Silver Iodide	0.342	1.685	0.1017	4.674	1.146	0.0420	823-1073	10,21,23
Silver Nitrate	-1.4038	4.2832	0.0023	11.745	2.749	0.0053	490-600	5,61,78
Sodium Bromide	-0.1583	2.994	0.0085	9.097	2.324	0.0013	1017-1229	10,82
Sodium Carbonate	-1.518	3.876	0.0049	13.758	3.527	0.0013	1138-1240	101

TABLE 128

SPECIFIC CONDUCTANCE OF SINGLE-SALT MELTS (cont'd)

Salt	LINEAR			EXPONENTIAL			RANGE °K	REFERENCES
	a	$b.10^3$	s	A°K	E°K	s		
Sodium Chloride	0.5862	2.798	0.0126	2.204	1.981	0.0024	1078–1294	2,4,10,27,33,42,4[illegible]5, 62,63,71,79,82,85
Sodium Fluoride	3.060	1.600	0.0095	7.706	1.046	0.0019	1273–1333	31,46,67,86,88
Sodium Hydroxide	-3.23	9.0	—	—	—	—	600-700	37
Sodium Iodide	-0.404	2.849	0.0123	8.292	2.423	0.0024	936–1187	2.10,66,82
Sodium Molybdate	-2.012	3.199	0.0057	15.609	5.112	0.0049	1024–1237	26,76
Sodium Nitrate	-1.5713	4.3835	0.0008	12.103	2.905	0.0012	580–700	7,26,27,61,66,71,75,93
Sodium Nitrite	—	—	—	13.2	2.60	—	570-720	66
Sodium Sulphate	-0.960	2.72	—	—	—	—	1200-1360	4
Sodium Thiocyanate	—	—	43	4.74	—	—	598-650	112
Sodium Tungstate	-0.760	1.840	0.0270	7.541	3.931	0.0045	1026–1774	26
Strontium Bromide	-2.128	3.188	0.0125	3.022	5.905	0.0177	929–1186	94
Strontium Chloride	-2.399	3.830	0.0011	17.792	4.987	0.0005	1146–1357	4,83,94
Strontium Iodide	-1.320	2.248	0.0086	10.990	4.932	0.0174	821–1270	94
Tellurium (II) Chloride	-0.4895	1.107	0.0010	66.19	6.933	0.0526	479-578	32
Tellurium (IV) Chloride	-0.446	1.102	0.0008	7.734	4.246	0.0161	509-589	32
Tellurium (IV) Oxide	-6.547	7.570	0.0520	$1.454.10^2$	9.656	0.0208	1023–1233	68

TABLE 128

SPECIFIC CONDUCTANCE OF SINGLE-SALT MELTS (cont'd)

Salt	LINEAR			EXPONENTIAL			RANGE K	REFERENCES
	a	$b.10^3$	s	A	E	s		
Thallium (I) Bromide	1.630	1.228	0.0429	2.363	1.366	0.0498	630-873	21
Thallium (I) Chloride	-1.446	3.607	0.0084	10.790	3.203	0.0063	703-873	21
Thallium (I) Iodide	-0.859	1.950	0.0031	6.688	3.588	0.0057	709-873	21
Thallium (I) Nitrate	—	—	—	10.64	3.26	—	490-700	48,110
Thorium (IV) Chloride	-1.147	1.625	0.0154	10.25	6.063	0.0217	1087-1195	32
Tin (II) Chloride	-2.158	5.687	0.0121	20.880	3.363	0.0197	518-684	35
Uranium (IV) Chloride	-2.023	2.803	0.0013	166.7	10.360	0.0108	843-893	32
Uranyl Chloride	-0.273	0.371	—	—	—	—	860-960	64
Vanadium (V) Oxide	-2.056	1.890	0.0058	$4.692.10^4$	29.422	0.058	1140-1237	68
Yttrium (III) Chloride	-1.647	2.077	0.0066	32.755	8.624	0.024	973-1148	35
Zinc Bromide	-0.768	1.125	0.0159	$7.012.10^2$	13.963	0.0644	671-913	94,98
Zinc Chloride	-0.682	1.059	0.0377	$2.603.10^3$	16.003	0.2209	712-941	33,94,98
Zinc Fluoride	-3.75	6.0	—	—	—	—	1150-1200	86
Zinc Iodide	-0.938	1.372	0.0049	$2.832.10^2$	12.000	0.0289	718-873	94

TABLE 129

EQUIVALENT CONDUCTANCE - SINGLE-SALT MELTS

Salt	A_Λ	E_Λ	Salt	A_Λ	E_Λ
Aluminum Triiodide	—	—	Indium (III) Bromide	6.66	91
Barium Bromide	693.8	6162	Indium (I) Chloride	1208	3528
Barium Chloride	772.5	6004	Indium (II) Chloride	288.4	3687
Barium Fluoride	—	—	Indium (III) Chloride	4.112	-2181
Barium Iodide	831.2	6367	Indium (III) Iodide	28.30	2480
Beryllium (II) Chloride	5.05×10^{15}	54,911			
Bismuth Tribromide	191.7	731	Lanthanum (III) Bromide	2770	10402
Bismuth Trichloride	98.6	2253	Lanthanum (III) Chloride	439.2	5515
Cadmium Bromide	295.3	3565	Lanthanum (III) Fluoride	—	—
Cadmium Chloride	224.4	2499	Lead (II) Bromide	864.5	4594
Cadmium Iodide	1109.0	6365	Lead (II) Chloride	1001	4514
Calcium Bromide	506.7	4901	Lithium Bromide	585.3	2117
Calcium Chloride	675.3	5285	Lithium Carbonate	754.5	4438
Calcium Fluoride	—	—	Lithium Chloride	508.2	2015
Calcium Iodide	545.6	5093	Lithium Fluoride	31.30	1811
Cerium (III) Chloride	403.0	6244	Lithium Iodide	396.3	1375
Cerium (III) Fluoride	—	—	Lithium Nitrate	835.6	3419
Cesium Bromide	1160	5533	Lithium Sulphate	—	—
Cesium Chloride	1102	5110	Magnesium Bromide	385.5	5404
Cesium Fluoride	741.8	3262	Magnesium Chloride	163.7	4363
Cesium Iodide	1125	5450	Magnesium Fluoride	—	—
Cesium Nitrate	551.1	3685	Magnesium Iodide	751.1	6752
Cesium Sulphate	—	—	Mercury (II) Bromide	2.074	6167
Copper (I) Chloride	189.2	1102	Mercury (I) Chloride	123.1	4391
Gallium (II) Iodide	771.8	5121	Mercury (II) Chloride	0.370	6490
			Mercury (II) Iodide	0.018	-5428

TABLE 129

EQUIVALENT CONDUCTANCE - SINGLE-SALT MELTS (cont'd)

Salt	A_Λ	E_Λ	Salt	A_Λ	E_Λ
Neodymium (III) Bromide	4137	11834	Silver Nitrate	587.9	2898
Potassium Bromide	591.1	3747	Sodium Bromide	622.7	3228
Potassium Carbonate	544.6	4650	Sodium Carbonate	550.2	4199
Potassium Chloride	558.3	3458	Sodium Chloride	544.6	2990
Potassium Dichromate	604.2	8141	Sodium Fluoride	244.8	2019
Potassium Fluoride	387.0	2398	Sodium Hydroxide	667.4	3120
Potassium Hydroxide	520.2	2467	Sodium Iodide	697.1	3230
Potassium Iodide	541.2	3442	Sodium Molybdate	779.9	5713
Potassium Molybdate	—	—	Sodium Nitrate	705.6	3215
Potassium Nitrate	657.4	3577	Sodium Nitrite	685.7	2949
Potassium Sulphate	904.9	5194	Sodium Sulphate	477.6	4266
Potassium Thiocyanate	786.1	6082	Sodium Tungstate	381.7	4491
Potassium Tungstate	—	—	Strontium Bromide	806.5	6183
Rubidium Bromide	611.1	4171	Strontium Chloride	689.6	5646
Rubidium Chloride	754.1	4401	Strontium Fluoride	—	—
Rubidium Iodide	568.1	3999	Strontium Iodide	610.1	5409
Rubidium Nitrate	515.7	3496	Thallium (I) Chloride	614.5	3612
Rubidium Sulphate	—	—	Thallium (I) Nitrate	748.0	3514
Scandium (III) Chloride	—	—	Tin (II) Chloride	745.6	3604
Silver Bromide	208.8	1087	Yttrium (III) Chloride	959.2	8827
Silver Chloride	255.1	1184	Zinc Bromide	3565	14604
Silver Iodide	239.9	1475	Zinc Chloride	20750	13715
			Zinc Iodide	17880	12636

TABLE 130

VISCOSITY - SINGLE-SALT MELTS

	EXPONENTIAL (cp).			BATCHINSKI (η in poise)		TEMPERATURE RANGE (°K)	REFERENCES
Salt	$A \times 10^3$	E_η	s	b	$B \times 10^6$		
Barium Chloride	1.643	20,029	0.0142	0.3076	453	1270-1310	52,109
Bismuth Chloride	378.7	4693	0.0095	0.2432	5348	540-610	16
Cadmium Bromide	189.3	4556	0.0042	—	—	860-940	53
Cadmium Chloride	131.9	5028	0.0252	0.2753	528	870-960	47,53
Calcium Chloride	10.73	12,030	0.0370	0.4669	474	1050-1240	47,109
Cesium Chloride	7.579	9819	0.0286	0.3425	284	940-1170	109
Copper (I) Chloride	104.2	5075	0.0115	0.2588	350	800-970	47
Lead (II) Bromide	82.68	5857	0.0077	0.2155	611	700-820	8,72
Lead (II) Chloride	56.19	6762	0.0091	0.2498	714	780-970	8,72
Lithium Bromide	68.68	5355	0.0127	0.3729	421	870-1040	47,102
Lithium Carbonate	1.406	16,890	0.0340	0.5397	579	1050-1120	107
Lithium Chloride	15.19	8517	0.0115	0.6438	491	930-1170	12,45,47
Lithium Iodide	115.1	4423	0.0078	0.2989	524	750-920	47
Lithium Nitrate	56.63	5103	0.0503	0.5513	929	540-700	5,38
Mercury (II) Bromide	19.42	5147	—	0.1841	292	530-550	6,58
Mercury (II) Iodide	65.86	3634	0.0114	0.2046	448	560-580	103
Potassium Bromide	40.00	4531	0.0189	0.1791	369	550-630	6,78,103

TABLE 130

VISCOSITY - SINGLE-SALT MELTS (cont'd)

	EXPONENTIAL (cp).		BATCHINSKI (η in poise)			TEMPERATURE RANGE (°K)	REFERENCES
Salt	$A \times 10^3$	En	s	b	$B \times 10^6$		
Potassium Carbonate	0.0116	29,490	0.0100	0.5201	286	1190-1250	107
Potassium Chloride	49.84	6586	0.0177	0.5722	983	1060-1200	12,102,111
Potassium Dichromate	10.16	6533	0.0201	0.4229	2037	670-780	8,110
Potassium Hydroxide	22.95	6177	0.0129	0.5668	385	680-870	37
Potassium Iodide	12.59	10,200	0.0286	0.3905	567	1030-1170	47
Potassium Nitrate	83.85	4301	0.0154	0.5026	948	630-810	5,8,12,38,57
Potassium Nitrite	133.7	4230	—	—	—	690-720	110
Potassium Thiocyanate	8.580	6454	0.0207	0.6115	1692	450-520	112
Rubidium Bromide	115.8	4863	0.0076	0.3112	852	960-1130	102
Rubidium Chloride	6.630	11,442	0.0259	0.4249	487	1010-1220	109
Silver Bromide	330.6	3088	0.0038	0.1683	377	720-860	24,72
Silver Chloride	309.8	2915	0.0059	0.1914	321	730-970	24,72
Silver Iodide	148.1	5259	0.0397	0.1721	268	880-1100	24
Silver Nitrate	115.3	3625	0.0018	0.2459	349	530-590	5,65,69
Sodium Bromide	110.9	5132	0.0127	0.3631	884	1060-1210	12,102
Sodium Carbonate	0.0383	26,260	0.0112	0.5015	305	1160-1240	107
Sodium Chloride	6.799	11,680	0.0267	0.6094	569	1090-1270	12,38,57
Sodium Hydroxide	72.11	4937	0.0285	0.5451	785	630-820	37

TABLE 130

VISCOSITY - SINGLE-SALT MELTS (cont'd)

	EXPONENTIAL (cp).			BATCHINSKI (η in poise)		TEMPERATURE RANGE (°K)	REFERENCES
Salt	$A \times 10^3$	En	s	b	$B \times 10^6$		
Sodium Iodide	40.01	7209	0.0107	0.3378	500	940-1170	47
Sodium Nitrate	104.0	3886	0.0120	0.4937	950	590-730	5,7,13,38
Sodium Nitrite	85.6	4000	—	0.5187	995	560-580	110
Sodium Thiocyanate	49.35	4636	0.0088	—	—	580-630	112
Strontium Chloride	0.4302	20700	0.0248	0.3601	268	1160-1260	109
Thallium (I) Nitrate	90.4	3610	—	—	—	480-520	110

Single-Salt Melts

References to Tables 1-130

References to Tables 1-130 (Single-Salt Melts)

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Molten Mixtures

The Binary Systems are listed by chemical compounds. The salient references are given so that the results, as originally published, can be recovered for the literature.

Table 131

Melt Densities-Binary Systems

System	Ref.
$AgBr$-$AgCl$	25
$AgBr$-KBr	7,25
$AgCl$-$AgNO_3$	33
$AgCl$-KCl	7,25
$AgCl$-$PbCl_3$	25
AgI-$AgNO_3$	30
$AgNO_3$-$NaNO_3$	37
$AgNO_3$-$TlNO_3$	26
$AlBr_3$-$HgBr_2$	4,21
$AlBr_3$-KBr	4,23
$2AlBr_3.KCl$	23
$AlBr_3$-$NaBr$	28
$2AlBr_3.NaBr$	23
$AlBr_3$-NH_4Br	21
$2AlBr_3.NH_4Br$	23
$AlBr_3$-$SbBr_3$	4,20
$AlBr_3.SbBr_3$	23
$AlBr_3.SbBr_3$-$AsBr_3$	32
$AlBr_3$-$ZnBr_2$	20
$2AlBr_3.ZnBr_2$	23
$AlCl_3$-KCl	29
$AlCl_3.KCl$	29
$AlCl_3.KCl$	19
$AlCl_3.LiCl$	19
$AlCl_3$-$NaCl$	16
$AlCl_3$-$NaCl$	19
$AlCl_3$-NH_4Cl	19
AlF_3-Na_3AlF_6 ‡	38,24,8
Al_2O_3-Na_3AlF_6	14,38,6
$BaCl_2$-$CdCl_2$	25,1
$BaCl_2$-$MgCl_2$	35
$BaCl_2$-$NaCl$	17
$BaCl_2$-$PbCl_2$	1,25
BaF_2-Na_3AlF_6	10,15
BaF_2-NaF	15
$BaNO_3$-KNO_3	36
$CaCl_2$-KCl	8
$CaCl_2$-$MgCl_2$	35
$CaCl_2$-$NaCl$	8,27
CaF_2-Na_3AlF_6	15,31,38
CaF_2-NaF	15
$CdBr_2$-$CdCl_2$	25
$CdCl_2$-KCl	7,25
$CdCl_2$-$NaCl$	7,25
$CdCl_2$-$PbCl_2$	25
Cu_2Cl_2-KCl	5
KBr-$ZnSO_4$	34
KCl-$LiCl$	12
KCl-$MgCl_2$	11,35
KCl-$NaCl$	8,17
KCl-$PbCl_2$	7,25
KCl-$ZnSO_4$	34
KNO_3-$NaNO_3$	3,8,36
KNO_3-$Pb(NO_3)_2$	36
KNO_3-$Sr(NO_3)_2$	36
K_2SO_4-$ZnSO_4$	34
$MgCl_2$-$NaCl$	35
NaF-Na_3AlF_6 ‡	13,14,15,22,24,38
$NaCl$-$PbCl_2$	17
$NaNO_3$-$Pb(NO_3)_2$	36
$PbBr_2$-$PbCl_2$	2,25
$TlCl$-$ZnSO_4$	34
Li_2CO_3-Na_2CO_3	39
Li_2CO_3-K_2CO_3	39
Na_2CO_3-K_2CO_3	39

Table 132

Melt Conductances-Binary Systems

System	Ref.
$AgBr-AgCl$	3
$AgCl-AgNO_3$	36
$AgCl-AlBr_3$	13
$AgCl-TlCl$	3
$AgI-AgNO_3$	33
$AgNO_3-HgI_2$	19
$AgNO_3-NaNO_3$	38
$AgNO_3-TlNO_3$	29
$AlBr_3-HgBr_2$	25
$AlBr_3-KBr$	30
$2AlBr_3-KCl$	13,28
$4AlBr_3-LiCl$	13
$AlBr_3-NaBr$	30
$2AlBr_3-NaBr$	28
$AlBr_3-NaCl$	13
$AlBr_3-NH_4Br$	25
$2AlBr_3.NH_4Br$	28
$AlBr_3-SbBr_3$	23
$AlBr_3-SbBr_3$	28
$AlBr_3-SbBr_3-AsBr_3$	35
$AlBr_3-ZnBr_2$	23
$2AlBr_3-ZnBr_2$	28
$AlCl_3-KCl$	21
$AlCl_3-KCl$	31
$AlCl_3-KCl$	21,31
$AlCl_3-LiCl$	21
$AlCl_3-NaCl$	14,15,5
$AlCl_3-NH_4Cl$	21
$AlF_3-Na_3AlF_6$	12,34,39
$Al_2O_3-Na_3AlF_6$	4, 12,39
$BaCl_2-MgCl_2$ †	37
$BaCl_2-NaCl$	17
$BaCl_2-NaNO_3$	40
BaF_2-NaF	11
$CaCl_2-KCl$	3,37
$CaCl_2-MgCl_2$ †	37
$CaCl_2-NaCl$	17,18
$CaF_2-Na_3AlF_6$	26,12,39
CaF_2-NaF	11,4
$Ca(NO_3)_2-KNO_3$	22
$CdBr_2-CdCl_2$	24
$CdCl_2-KCl$	3,24,27
$CdCl_2-NaCl$	24
$CdCl_2-PbCl_2$	24
$CdCl_2-TlCl$	3
$HgBr_2-NH_4Br$	32
$HgCl_2-HgI_2$	19
$HgCl_2-NH_4Cl$	32
$HgCl_2-TlNO_3$	19
HgI_2-NH_4I	32
HgI_2-TlNO_3	19
$KCl-LiCl$	10
$KCl-MgCl_2$ †	16,37
$KCl-NaCl$	16
$KCl-PbCl_2$	24
$KF-NaCl$	6
KNO_3-NaNO_3	19
$MgCl_2-NaCl$ †	37
Na_3AlF_6-NaF ‡	34,39
$NaCl-Na_2CO_3$	6
$NaCl-NbCl_5$	20
$NaCl-PbCl_2$	17
$NaCl-ZrCl_4$	20
$NaF-SrF_2$	11
$PbBr_2-PbCl_2$	3
$Li_2CO_3-Na_2CO_3$	41
$Li_2CO_3-K_2CO_3$	41
$Na_2CO_3-K_2CO_3$	41

Table 133

Melt Viscosities-Binary Systems

System	Ref.	System	Ref.	System	Ref.
$LiF-BeF_2$	33	$KF-BeF_2$	30	$AlBr_3-HgBr_2$	15
$LiCl-KCl$	6	$KCl-MgCl_2$	5,7,13	$AgCl-AgBr$	27
$LiNO_3-RbNO_3$	32	$KCl-AgCl$	27	$AgCl-PbCl_2$	27
$NaF-BeF_2$	33	$KCl-CdCl_2$	28	$AgBr-HgBr_2$	22
$NaF-AlF_3$	21	$KCl-PbCl_2$	28	$AgI-AgNO_3$	13,19,32
$NaF-ZrF_4$	33	$KCl-SbCl_3$	9	$AgI-HgI_2$	9
$NaCl-NaNO_3$	24	$KCl.2AlBr_3$	16	$AgNO_3-HgBr_2$	22
$NaCl-KCl$	6,10	$KBr-AlBr_3$	14,18	$AgNO_3-HgI_2$	26,32
$NaCl-KNO_3$	20	$KBr-AgBr$	27	$AgNO_3.TlNO_3$	4
$NaCl-MgCl_2$	7	$KBr-ZnSO_4$	32	$CdCl_2-CdBr_2$	17
$NaCl-CaCl_2$	10,11,24,32	$KBr-HgBr_2$	22	$CdCl_2-PbCl_2$	28
$NaCl-BaCl_2$	10,24,32	$KNO_3-Ca(NO_3)_2$	32	$HgBr_2-HgI_2$	1
$NaCl-AlCl_3$	8,13	KNO_3-AgNO_3	25,32	$HgBr_2-TlBr$	22
$NaCl-CdCl_2$	28	$K_2SO_4-ZnSO_4$	32	$PbCl_2-PbBr_2$	23,27
$NaCl-PbCl_2$	10	$RbNO_3-AgNO_3$	32		
$NaBr-AlBr_3$	18	$CsBr-ZnSO_4$	32		
$NaBr-HgBr_2$	22	$NH_4Br-AlBr_3$	15		
$NaBr-2AlBr_3$	16	$NH_4Br-2AlBr_3$	16		
$NaOH-Na_3AsO_4$	31	$NH_4Br-ZnBr_2$	16		
$NaOH-Na_3SbO_4$	31	$MgCl_2-CaCl_2$	29		
$NaNO_3-KNO_3$	2,3,12	$AlBr_3-ZnBr_2$	14		

Molten Mixtures

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U.S. Air Force - Research Grant Af-AFOSR-181-63

Technical Report

U.S. - AFOSR No. 64-0039

MOLTEN SALT DATA

Electrical Conductance, Density and Viscosity

by

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ERRATUM

The coefficients of the density (ρ) and equivalent conductance (Λ) equations given in Table 46, [LEAD (II) CHLORIDE], and Table 68, [LEAD (II) BROMIDE], are in error. The corrected forms of these equations, together with the appropriate values of ρ and Λ at 10°K. intervals, are attached herewith.

TABLE 46 (Corrected Dec. 8, 1964)

LEAD (II) CHLORIDE

Eq. Wt. 139.06 m.p. 501°C. (774°K.)

κ = 18.093 exp. (-3883/RT)

ρ = $6.112 - 1.50.10^{-3}T$

Λ = 668.4 exp. (-4355/RT)

η = $72.9309 - 0.17501T + 1.39742.10^{-4}T^2 - 3.59013.10^{-8}T^3$

T	Λ	κ	ρ	η
780	41.5	1.47_5	4.942	4.40
790	43.0	1.52_5	4.927	4.18
800	44.4	1.57	4.912	3.98
810	46.0	1.62	4.897	3.78
820	47.6	1.67	4.882	3.59
830	49.0	1.71_5	4.867	3.41
840	50.6	1.76_5	4.852	3.24
850	52.2	1.81_5	4.837	3.09
860	53.8	1.86_5	4.822	2.94
870	55.4	1.91_5	4.807	2.80
880	57.0	1.96_5	4.792	2.67
890	58.7	2.01_5	4.777	2.55
900	60.3	2.06_5	4.762	2.44
910	61.8	2.11	4.747	2.34
920	63.5	2.16	4.732	2.24
930	65.2	2.21	4.717	2.16
940	66.8	2.26	4.702	2.08
950	68.5	2.31	4.687	2.01
960	70.2	2.36	4.672	1.94
970	72.1	2.41_5	4.657	1.89

Density: 15, 40, 54.

Conductance: 7, 51, 72, 85, 96.

Viscosity: 8, 72.

TABLE 68 (Corrected Dec. 8, 196?)

LEAD (II) BROMIDE

Eq. Wt. 183.52 m.p. 373 °C. (646 °K.)

$\kappa = -3.4892 + 8.7490.10^{-3}T - 3.7998.10^{-6}T^2$

$\rho = 6.571 - 1.45.10^{-3}T$

$\Lambda = 700.8 \exp. (-4619/RT)$

$\eta = 4.245.10^{-2} \exp. (6964/RT)$

T	Λ	κ	ρ	η
650	19.30	0.592	5.628_5	
660	20.5_9	0.630	5.614	
670	21.8_6	0.667	5.599_5	
680	23.1_0	0.703	5.585	
690	24.3_5	0.739	5.570_5	
700	25.5_3	0.773	5.556	5.57
710	26.7_3	0.807	5.540_5	5.25
720	27.8_9	0.840	5.527	4.96
730	29.0_6	0.873	5.512_5	4.69
740	30.1_7	0.904	5.498	4.44
750	31.2_9	0.935	5.483_5	4.21
760	32.3_8	0.965	5.469	4.00
770	33.4_8	0.995	5.454_5	3.80
780				3.62
790				3.45
800				3.29
810				3.15
820				3.01

Density: 13, 54.

Conductance: 7, 72.

Viscosity: 8, 72.